AEMC

RULE

Australian Energy Market Commission

CONSULTATION PAPER

NATIONAL ELECTRICITY AMENDMENT (UPDATING SHORT TERM PASA) RULE 2021

PROPONENT
AEMO

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INQUIRIES

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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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1 INTRODUCTION

On 29 June 2021, the Australian Energy Market Operator (AEMO) submitted a rule change request to the Australian Energy Market Commission (AEMC or Commission). The request seeks to amend the National Electricity Rule clauses that address the short-term projected assessment of system adequacy (ST PASA).[1] In particular, AEMO proposes changes to:

- Introduce a principles-based framework in clause 3.7.3 of the NER to provide more flexibility to AEMO and market participants to update ST PASA. This would accommodate the new system being developed by AEMO in its ST PASA replacement project.[2]
- Require the publication of generation availability information on a per unit, or dispatchable unit identifier (DUID), level.
- Change the definition of PASA availability to remove the specification of available capacity within 24 hours and replace it with a requirement to specify the recall notice period for relevant plant.

This consultation paper has been prepared to facilitate public consultation on the rule change request and seek stakeholder submissions.

1.1 Key dates

The Commission is progressing this rule change under the standard rule change process. Consistent with the requirements for a standard rule change process under the NEL, the key dates for stakeholders in this process are:

- commencement of this rule change process on 26 August 2021
- submissions on the consultation paper to be received by 23 September 2021
- draft determination published 2 December 2021
- submissions due on draft determination 27 January 2022
- final determination 10 March 2022.

1.2 Structure of the paper

This consultation paper:

- sets out the background and context relating to the rule change request
- outlines the proposed assessment framework and the rule-making powers of the Commission
- identifies the issues raised in the rule change request and poses questions to facilitate the consultation on this rule change request
- outlines the process for making submissions.

1 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition.
2 AEMO, ST PASA Replacement Project, https://aemo.com.au/en/initiatives/trials-and-initiatives/st-pasa-replacement-project.

2 BACKGROUND

This section provides background information on:

- the current arrangements in the NER in relation to ST PASA
- the current ST PASA processes
- AEMO's ST PASA replacement project
- related projects.

2.1 Short-term projected assessment of system adequacy current arrangements

The NER requires that AEMO administer the PASA processes.[3] The PASA is the principal method of indicating to the National Electricity Market (NEM) a forecast of electricity system reliability for a period of up to two years.[4] The PASA also takes into account power system security requirements to ensure that they are maintained. 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 short-term PASA process, or ST PASA.

Clause 3.7.3 of the NER sets out the rules governing ST PASA. The NER requires that ST PASA covers six trading days from the end of the trading day covered by the most recent pre-dispatch scheduled with a half-hourly resolution.[5] AEMO has noted that in practice, the current ST PASA is published for a seven trading day period. This is because pre-dispatch PASA (PD PASA) is run every 30 minutes on the 30-minute boundary from real-time until the end of the trading day for which dispatch bid prices are firm, i.e. the pre-dispatch horizon.[6] Therefore in practice, PD PASA and ST PASA (referred to collectively as ST PASA by AEMO in the rule change) cover the period from the end of the most recent 30 minute trading interval until the end of the ST PASA period.

It is important to note the difference between pre-dispatch and pre-dispatch PASA. The pre-dispatch scheduling period is the period from the currently dispatched trading interval up to and including the last trading interval of the last trading day for which the submission of energy bid band prices has closed, which is the current trading day. The pre-dispatch process, or pre-dispatch, provides wholesale market participants with sufficient unit loading, unit ancillary service reserve and regional pricing information for them to make informed and timely business decisions relating to the operation of their dispatchable units.[7] Pre-dispatch PASA is an extension of ST PASA to cover the pre-dispatch scheduling period. The NER specifies that AEMO must complete ST PASA to cover six trading days from the end of the pre-dispatch scheduling period, however AEMO also runs PD PASA so that the combined PD

3 Clause 3.7.1 of the NER.

4 AEMC, Improved transparency and extending duration of MT PASA, Consultation paper, https://www.aemc.gov.au/rule-changes/improving-transparency-and-extending-duration-mt-pasa.

5 Clause 3.7.3 (b) of the NER

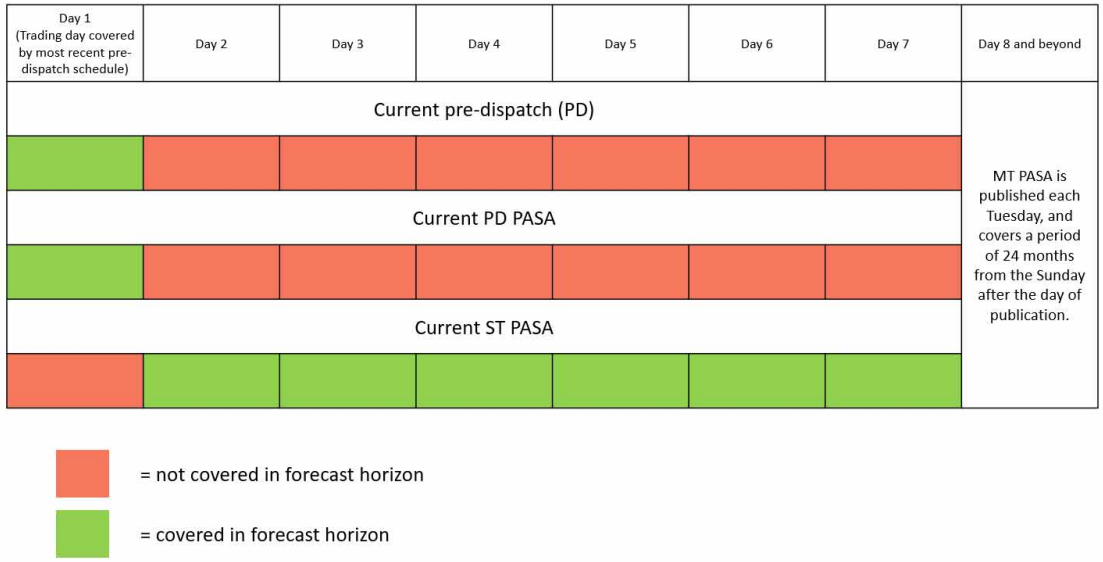
6 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.

7 AEMO, Pre-dispatch process description, https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/dispatch/policy_and_process/pre-dispatch-process-description.pdf.

and ST PASA cover a period of seven trading days. The key point of differentiation is that pre-dispatch and pre-dispatch PASA are run using different models and incorporate different information. The major difference is that pre-dispatch includes bids and offers, and therefore prices, whereas pre-dispatch PASA does not.[8]

These timelines are illustrated in Figure 2.1.

Figure 2.1: PASA timeframes



Note: Clause 3.7.2 of the NER governs the MT PASA process. Clause 3.7.2 (a) states that the medium term PASA covers the 24 month period (or, in the case of paragraphs (d)(1)(i) and (f)(5) the 36 month period), commencing from the Sunday after the day of publication with daily resolution. The Spot Market Operations Timetable specified that MT PASA is published each Tuesday. This means that in practice, the ST PASA will overlap with the information in the MT PASA for between one and six days between MT PASA publications.

The NER do not currently include an objective of ST PASA. However, AEMO has defined the following objectives as defined in the ST PASA process description:[9]

- To provide a benchmark for AEMO to intervene in the market through the reserve trading provisions of the NER, and then commit extra capacity (either scheduled generation or loads) into the spot market.
- To provide information to market participants on the expected level of short-term capacity reserve and hence the likelihood of interruptions due to a shortage of power.

8 Under clause 3.8.20 of the NER, AEMO must run pre-dispatch with the resolution of one trading interval, i.e. 30 minutes.

9 AEMO, Short Term PASA Process Description, 16 March 2012, page 6, https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/projected-assessment-of-system-adequacy.

2.2 Current ST PASA processes

To meet the objectives of the ST PASA process and to comply with the requirements in the NER, AEMO uses both internal and external information to provide a forecast of the adequacy of the supply/demand balance over the specified time period.[10]

At a high level, inputs provided by AEMO for ST PASA as specified in the NER include:

- load forecasts
- reserve requirements (determined by the Reliability Panel)
- network constraints information.

At a high level, inputs provided by market participants to AEMO for ST PASA as specified in the NER include:

- unit availability
- unit PASA availability[11]
- unit energy availability (limited by unit daily energy bid).

This information is provided to the PASA Solver, a linear programming solver, that solves the case according to the PASA formulation. The ST PASA process does not consider bids and offers and does not publish forecast prices. This instead occurs in the pre-dispatch process.[12]

At a high level, the outputs of ST PASA as specified in the NER include:

- load forecasts for each region
- reserve requirements for each region
- network constraint information[13]
- forecast reserve levels and reserve conditions for each region
- aggregate unit availability and PASA availability for each region
- ST PASA interconnector limits and transfer capabilities.

Figure 2.2 provides a high-level overview of the ST PASA process.

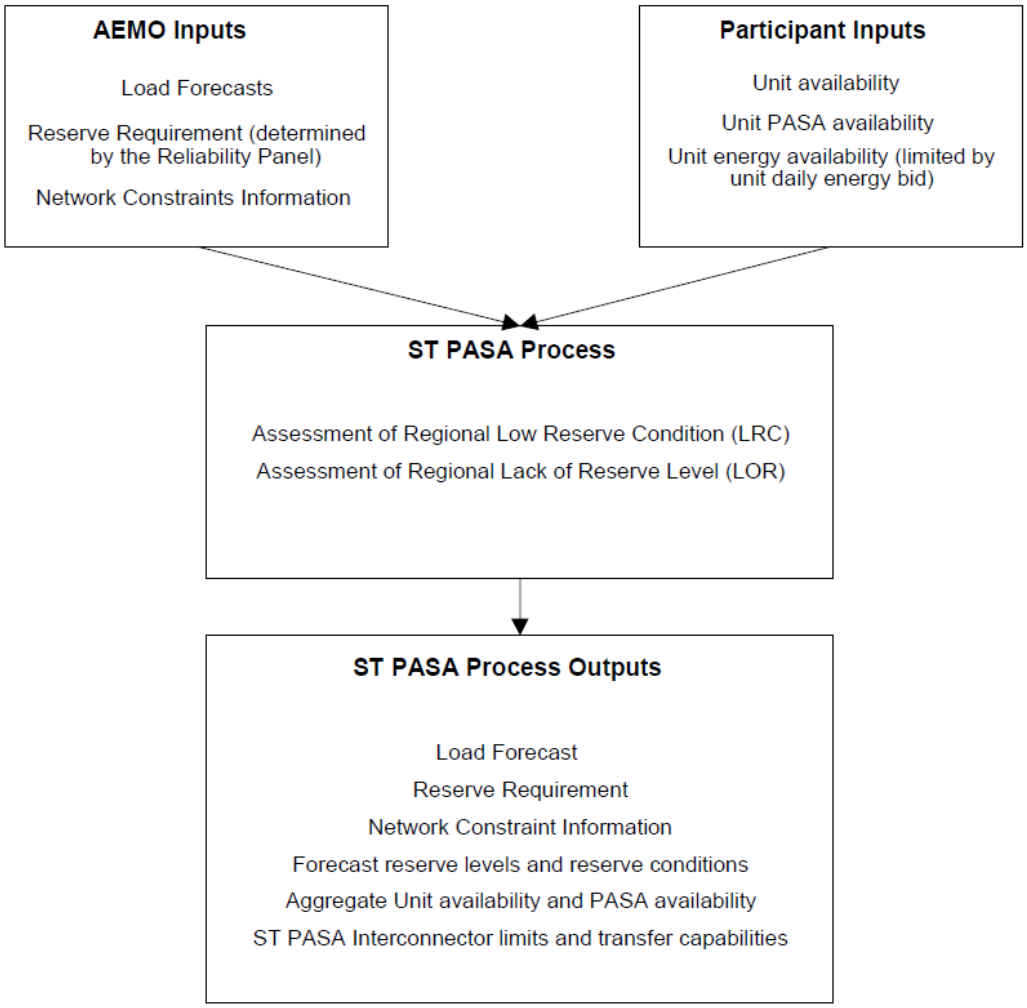
10 AEMO, Short Term PASA Process Description, 16 March 2012, page 7, https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/projected-assessment-of-system-adequacy.

11 The current definition of PASA availability in the NER is "the physical plant capability (taking ambient weather conditions into account in the manner described in the procedure prepared under clause 3.7.2(g)) of a scheduled generating unit, scheduled load, or scheduled network service available in a particular period, including any physical plant capability that can be made available during that period, on 24 hours' notice."

12 AEMO, Pre-dispatch process description, https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/dispatch/policy_and_process/pre-dispatch-process-description.pdf.

13 AEMO has noted that network constraints information is the list of network constraints that are binding or violating in the PD or ST PASA run.

Figure 2.2: ST PASA process



Source: AEMO, ST PASA process description, page 7.

In initial engagements, AEMO has noted that both the current and new ST PASA systems take into account system security requirements through system security network constraints. The current ST PASA shows the outcomes in relation to system security in the constraints solution table.

2.3 AEMO's ST PASA replacement project

AEMO is currently engaged in the ST PASA replacement project, which involves a comprehensive review of the PD and ST PASA methodology.[14] The process will explore the development of a system that will meet the current and future needs of the NEM.

14 AEMO, ST PASA Replacement Project, https://aemo.com.au/en/initiatives/trials-and-initiatives/st-pasa-replacement-project.

AEMO has stated that the PD and ST PASA systems were designed when most of the generation in the NEM was supplied from large thermal units connected to the transmission network. An assessment of the current PD and ST PASA systems noted that the power system is rapidly changing due to the advent of emerging technologies, such as battery storage, variable renewable energy (VRE) generation, virtual power plants (VPPs), and distributed energy resources (DER), and that the current systems are unable to model these technologies. The assessment also noted that the systems are also unable to incorporate improvements in the modelling of intra-regional network issues, sharing of reserves across different regions and the allocation of energy-limited resources.[15]

In December 2019, AEMO engaged Intelligent Energy Systems (IES) and Steve Wallace Advisory (SWA) to consult with industry to understand the requirements for the ST PASA system going forward. AEMO concluded that the existing ST PASA system, even with modifications, will not be able to satisfy the NEM's future requirements. Increasing amounts of VRE generation, energy storage systems and DER, and decreasing amounts of large thermal generation mean that the current ST PASA system will not be able to effectively and robustly assist with the analysis of key risks and how they might impact system security and reliability.[16]

AEMO published an industry update in December 2020.[17] This update stated that the current design being considered by AEMO includes a full network model of the network currently modelled in ST PASA, with reliability being forecast at a nodal level. This method will allow for a more accurate reflection of the physical power system, especially during periods of intra-regional network outages. The new model will also address other issues, such as the improved handling of uncertainty, improved energy storage models, improved identification of system security issues, as well as the ability to suggest the lowest cost RERT activation schedules if required.

2.4 Related projects

This section will address the overlaps between the *Updating ST PASA* rule change and some other related reform work that the AEMC is or has engaged in.

2.4.1 Improving transparency and extending duration of medium term PASA

On 20 February 2020, the AEMC made a more preferable rule to amend medium term PASA (MT PASA).[18] The rule change request was submitted by ERM Power, and sought a number of amendments to MT PASA to improve transparency and improve accuracy, and to extend the projected outlook of MT PASA from two to three years.

The key features of the final rule include:

15 AEMO, ST PASA Replacement Project, https://aemo.com.au/en/initiatives/trials-and-initiatives/st-pasa-replacement-project.

16 Intelligent Energy Systems and Steve Wallace Advisory, ST PASA Replacement Functional Requirements, 20 May 2020, page 64, https://aemo.com.au/en/initiatives/trials-and-initiatives/st-pasa-replacement-project.

17 AEMO, ST PASA Replacement Project Industry Update, 20 December 2020, https://aemo.com.au/-/media/files/initiatives/st-pasa-replacement-project/st-pasa-replacement-project--poc-showcase-may21.pdf?la=en.

18 AEMC, Improving transparency and extending duration of MT PASA, https://www.aemc.gov.au/rule-changes/improving-transparency-and-extending-duration-mt-pasa.

- information on generation availability of individual scheduled generating units to be published
- actual demand and forecast demand published in the same format
- a maximum and minimum aggregated scheduled generating availability adjusted for forced outage assumptions.

The final rule was also prescriptive in nature, with clause 3.7.2 of the NER detailing the specific requirements on AEMO and market participants in relation to MT PASA.

In addition, the issue of publication of information on generation availability of individual generating units was addressed in this rule change. This is described in more detail in Chapter 5.3.

2.4.2 Energy Security Board Essential System Services and Scheduling and Ahead Mechanisms workstream, and the AEMC system security work program

The Energy Security Board's (ESB) Essential System Services (ESS) and Scheduling and Ahead Mechanisms (SAM) workstream is considering changes to support the secure operation of the power system and the continued provision of services needed to maintain the security of the power system.[19]The services defined by the ESB are:

- frequency
- operating reserve
- inertia
- system strength.

The AEMC is also progressing a number of related system security rule changes in parallel to the ESB process. This work includes:

- *The efficient management of system strength on the power system*[20]
- *Capacity commitment mechanism for system security and reliability services*[21]
- *Synchronous services market*[22] and
- *Operating reserve market*.[23]

The Commission considers that the improvements in the provision of system security and reliability information may have an impact on these work programs.

19 ESB, Post 2025 Market Design Options - A paper for consultation Part A, https://esb-post2025-market-design.aemc.gov.au/32572/1619564199-part-a-p2025-march-paper-esb-final-for-publication-30-april-2021.pdf.

20 AEMC, Efficient management of system strength on the power system, https://www.aemc.gov.au/rule-changes/efficient-management-system-strength-power-system.

21 AEMC, Capacity commitment mechanism for system security and reliability services, https://www.aemc.gov.au/rule-changes/capacity-commitment-mechanism-system-security-and-reliability-services.

22 AEMC, Synchronous services markets, https://www.aemc.gov.au/rule-changes/synchronous-services-markets.

23 AEMC, Operating reserve market, https://www.aemc.gov.au/rule-changes/operating-reserve-market.

3 OVERVIEW OF THE RULE CHANGE REQUEST

This chapter provides an overview of the issues identified in the rule change request.[24] The details of each of the issues raised are addressed in more detail in Chapter 5. A copy of the rule change request and proposed rule can be found on the AEMC website at www.aemc.gov.au.

AEMO's proposed rule change focuses on clause 3.7.3 of the NER, which establishes the requirements for AEMO and market participants in relation to ST PASA.

AEMO's proposed rule seeks to amend clause 3.7.3 of the NER to support the replacement of the current ST PASA.[25] The rule change request proposes to move to a principles-based approach to clause 3.7.3 of the NER, with the intention of removing unnecessary prescription and non-essential detail from the NER and placing it in AEMO procedures, which will be consulted on. AEMO proposes that this approach will result in AEMO and market participants having greater flexibility to respond to future ST PASA modelling changes, and ongoing power system changes, more quickly and efficiently, and with lower associated costs.

AEMO's proposed rule refers to PD PASA and ST PASA collectively as ST PASA. The rule change request proposes that the requirement for ST PASA to be published for six days from the end of the most recent pre-dispatch period be removed. The rule change request proposes that instead, it is specified that ST PASA, referring collectively to PD PASA and ST PASA, be published for a period of seven days from the end of the most recent dispatch interval. In practice, this change would redefine ST PASA to include the currently separate PD PASA and ST PASA processes. These proposed timelines are illustrated in Figure 3.1.

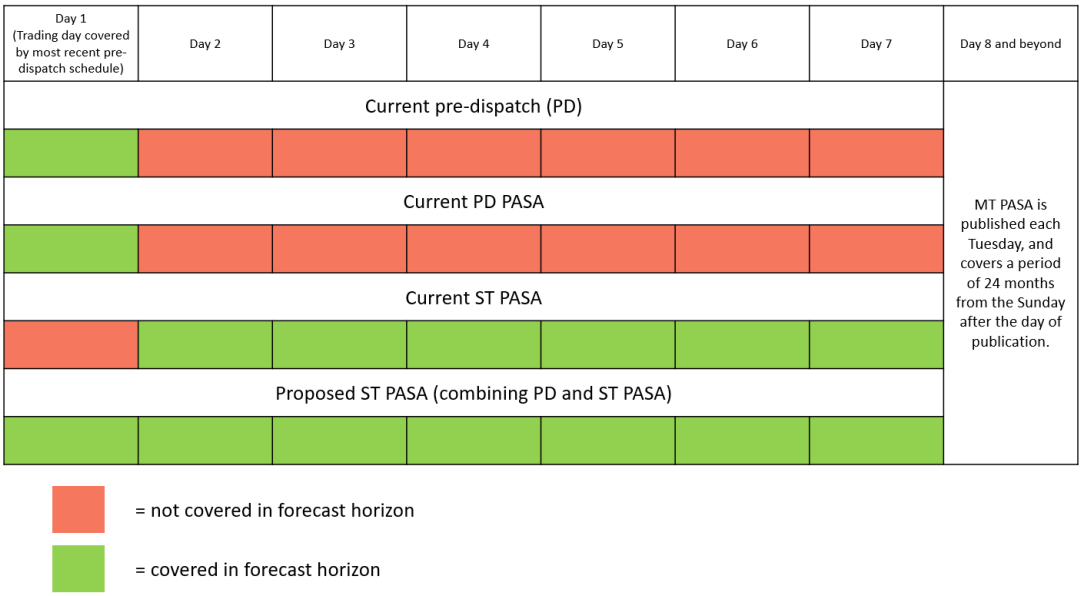
Clause 3.7.2 of the NER governs the MT PASA process. Clause 3.7.2 (a) states that the medium term PASA covers the 24-month period (or, in the case of paragraphs (d)(1)(i) and (f)(5) the 36 month period), commencing from the Sunday after the day of publication with a daily resolution. The Spot Market Operations Timetable specifies that MT PASA is published each Tuesday.[26] This means that in practice, the ST PASA will overlap with the information in the MT PASA for between one and six days between MT PASA publications.

24 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition.

25 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition.

26 AEMO, Spot Market Operations Timetable, https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Dispatch/Spot-Market-Operations-Timetable.pdf.

Figure 3.1: AEMO's proposed changes to ST PASA



AEMO's proposed rule would require AEMO to publish unit available capacity and PASA availability[27] on a per unit, or DUID, basis as an output of ST PASA. AEMO considers that this approach will improve the transparency of information available to network service providers (NSP) and market participants. AEMO proposes that this will improve operational and market decisions about the capacity that market participants can provide at certain times.

AEMO's proposed rule would also change the definition of PASA availability in the NER. The proposed change is to remove the specification that PASA availability is physical plant availability that can be made available on 24 hours' notice, and instead provide a range of time horizons.

27 The current definition of PASA availability in the NER is "the physical plant capability (taking ambient weather conditions into account in the manner described in the procedure prepared under clause 3.7.3 (g)) of a scheduled generating unit, scheduled load or scheduled network service available in a particular period, including any physical plant capability that can be made available during that period, on 24-hours' notice".

4 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
- the Commission's options to make a more preferable rule
- the Commission's option to make a differential rule.

4.1 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).[28] This is the decision-making framework that the Commission must apply.

The NEO is:[29]

> 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.

Based on a preliminary assessment of the rule change request, the Commission considers that the most relevant aspects of the NEO are the reliability and security of the supply of electricity, as well as the reliability and security of the national electricity system.

4.2 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.

4.3 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

28 Section 88 of the NEL.
29 Section 7 of the NEL.

  - 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 proposed rule related to parts of the NER that currently do not apply in the Northern Territory, the Commission has not assessed the proposed rule against additional elements required by the Northern Territory legislation.[30]

4.4 Proposed assessment framework

To determine whether the rule change request promotes the NEO, the Commission will assess the rule change request against an assessment framework. This framework may be refined during the rule change process. The Commission is seeking stakeholder views on its proposed assessment framework, which includes the following criteria:

- Promoting reliability and security at lowest cost: Maintaining a secure and reliable power system is a critical objective of the NEO and in the long-term interest of consumers. The Commission considers that the rule change request addresses reliability and security in two ways:
  - Provision of information to the market: The Commission will consider the benefits of ST PASA providing more transparent and accurate information to the market, as well as the potential risk of co-ordination or manipulation that may arise when market participants have increased visibility of their rivals' position.
  - Provision of information to AEMO: The Commission will consider the benefits of improved information in relation to more efficient use of reliability and security interventions by AEMO, particularly in relation to RERT and directions.
- Administrative compliance requirements and costs: 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 impact of the proposed solution on these costs.
- Efficient facilitation of broader reform program: The Commission notes that ST PASA may be related to a number of ongoing work programs, particularly with the ESB and AEMC system security work programs. The Commission will consider the extent to which the proposed solution will efficiently facilitate related projects.

QUESTION 1: ASSESSMENT FRAMEWORK

1. Do stakeholders agree with the proposed assessment framework? Are there additional principles that the Commission should take into account?

30 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. 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.) National Electricity (Northern Territory) (National Uniform Legislation) Act 2015.

5 ISSUES FOR CONSULTATION

A number of issues have been identified for initial consultation. Stakeholders are encouraged to comment on these issues as well as any other aspect of the rule change request or this consultation paper, including the proposed assessment framework in Chapter 4.4.

The chapter outlines the following issues for stakeholder feedback, which are:

- The current NER are not understandable, have unnecessary prescription and limit AEMO's flexibility to make changes.
- The proposed principles-based approach to the NER in relation to ST PASA.
- The specification of ST PASA being published over seven days.
- Publication of generator availability on a DUID level.

In providing feedback on the rule change request, the Commission encourages stakeholders to consider the interactions of the proposed changes in thinking through the costs and benefits. In other words, stakeholders are encouraged to provide feedback on each issue separately, but also in total.

5.1 The current NER are not understandable, have unnecessary prescription and limit AEMO's flexibility to make changes

Issue raised

In the rule change request, AEMO has argued that the current arrangements reflect the limitations of the ST PASA system that were identified in the ST PASA replacement project as outlined in Chapter 2.3.[31] AEMO considers that there are inputs to, and outputs of the ST PASA process specified in clause 3.7.3 of the NER that may no longer be useful to market participants or may not be used in the new ST PASA system. AEMO states that unnecessarily requiring information in the NER instead of in AEMO procedures can lead to a misalignment of what information is needed or used and creates ambiguity for market participants.

Additionally, AEMO states that the current arrangements in the NER limit the flexibility with which it can make changes to the ST PASA requirements to improve ST PASA over time. AEMO notes that it is important to allow for sufficient flexibility to implement modelling changes identified in consultation with stakeholders in a more timely manner, and with less costs involved, than would be allowed by the current arrangements.[32] This will allow AEMO to develop ST PASA to reflect the changing power system.

31 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.
32 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 9.

QUESTION 2: CURRENT ARRANGEMENTS IN THE NER IN RELATION TO ST PASA

1. Do stakeholders agree that the current arrangements in the NER in relation to ST PASA are overly prescriptive? If so, which arrangements and why?
2. Do stakeholders agree with AEMO's perspective that the current arrangements in the NER in relation to ST PASA lead to ambiguity? Are there any other negative effects due to the current arrangements?
3. Do stakeholders agree that there is likely to be an ongoing need for flexibility in relation to ST PASA and that moving requirements to AEMO procedures is preferable to keeping them in the NER?

Proposed solution

AEMO has proposed that in order for the new ST PASA system to continue to meet its objectives and develop with a changing power system, a less prescriptive and clearer rule is needed.[33] AEMO has proposed that a principles-based approach to NER in relation to ST PASA would meet the needs that AEMO has described. The draft rule that AEMO has proposed would continue to define the minimum requirements for AEMO and market participants in relation to ST PASA at a high level.

AEMO has stated that implementing its proposed approach to the NER in relation to ST PASA will allow it the flexibility to consult with market participants on more detailed design of the inputs, outputs and information. These specifications would be published in AEMO procedures. AEMO has stated that the proposed rule simplifies the drafting of information that registered participants must provide to AEMO without changing the underlying requirements.[34]

In the draft rule, AEMO has suggested that the principles-based approach would consist of the following components:

1. an ST PASA objective
2. require AEMO to develop and publish procedures to describe the ST PASA inputs, outputs and methodology
3. specify that AEMO may undertake a single stage consultation process for the ST PASA procedures[35]
4. require AEMO to publish ST PASA at least daily[36]
5. require AEMO to prepare various ST PASA inputs

33 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.

34 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 9.

35 On 8 January 2021, the AEMC received a rule change request from AEMO to amend the National Electricity Rules consultation procedures and the Gas extended consultation procedure. AEMC, Improving consultation procedures in the Rules, https://www.aemc.gov.au/rule-changes/improving-consultation-procedures-rules.

36 As is the case with the current arrangements, this is a minimum requirement.

6. replace references to Scheduled Generator and Market Participant with the generic term, Registered Participant[37]
7. require AEMO to publish ST PASA information to reflect the objective, including some specific information
8. definition changes

Each of the components of the proposed approach are explored in more detail below.

5.1.1 The NER would provide an objective for ST PASA

Currently, the NER does not specify an objective for ST PASA. As noted in Chapter 2.1, the objectives of ST PASA are defined in the ST PASA process description document to be:[38]

- Provide a benchmark for AEMO to intervene in the market through the reserve trading provisions of the National Electricity Rules, and then commit extra capacity (either scheduled generation or loads) into the spot market.
- Provide information to market participants in the expected level of short-term capacity reserve and hence the likelihood of interruptions due to a shortage of power.

AEMO's proposed objective for ST PASA in the rule change request is:

> to provide forecasts of power system security and reliability for each 30-minute interval for a period of seven days from the day of publication.

This is different to the current objectives and removes references to the reserve trading provisions.

The AEMC notes that generally, when making a principles-based rule, the objective is accompanied by a further set of guiding principles in the Rules. The principles provide guidance on important aspects to be considered when meeting the objective of a process.

QUESTION 3: THE NER WOULD PROVIDE AN OBJECTIVE FOR ST PASA

1. Do stakeholders agree with AEMO's proposed objective for ST PASA? If not, what elements should be added or removed from the objective?
2. Do stakeholders have views on relevant guiding principles in relation to ST PASA?

37 On 15 July 2021, the AEMC made a draft rule in the Integrating energy storage systems into the NEM rule change. The draft rule removes the term Scheduled Generator from clause 3.7.3 (e) of the NER, however does not change the term Market Participant. AEMO's proposed changes would replace the term Market Participant with the term Registered Participant. As noted in Section 5.1.6, the term Market Participant is contained within the definition of Registered Participant. The Commission considers the proposed changes will not impact the draft rule made in the Integrating energy storage systems into the NEM rule change. AEMC, Integrating energy storage systems into the NEM, https://www.aemc.gov.au/rule-changes/integrating-energy-storage-systems-nem.

38 AEMO, ST PASA process description, https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/pasa/0431-0004-pdf.pdf.

5.1.2 The NER would require AEMO to develop and publish procedures to describe inputs, outputs and a methodology

AEMO has proposed that the NER would require AEMO to develop and publish procedures to describe:

- how AEMO will prepare ST PASA inputs that will be specified at a high level in the rules
- details of the ST PASA information that AEMO will publish to meet the requirements specified at a high level in the rules
- the processes and methodologies AEMO will apply to produce the ST PASA information.

Currently, clause 3.7.3 (j) of the NER specifies that AEMO must publish the procedure that it uses for preparation of the ST PASA. This is the ST PASA process description document. This document currently contains information on:

- the ST PASA process
- AEMO inputs
- participant inputs
- ST PASA outputs.

The proposed changes may increase the importance of the procedures in relation to specifying requirements from participants. This is because the NER may no longer define specific inputs, outputs and processes in relation to ST PASA, and will instead defer to AEMO to describe these elements.

> QUESTION 4: REQUIRE AEMO TO DEVELOP AND PUBLISH PROCEDURES TO DESCRIBE INPUTS, OUTPUTS AND A METHODOLOGY
>
> 1. Do stakeholders support the NER requiring AEMO to publish the procedures as described?
> 2. Should there be other requirements on AEMO in relation to publication of ST PASA information?

5.1.3 Specify that AEMO may undertake a single-stage consultation process for the ST PASA procedures

AEMO has proposed that the NER specify that AEMO must comply with the rules consultation process to develop and amend the ST PASA procedures, except:

- A single-stage consultation process can be applied like the one that applies for NER clause 4.8.4, relating to the Reserve Level Declaration Guidelines (RLDG).
- AEMO may make minor or administrative changes without complying with the Rules consultation procedures.

NER clause 4.8.4A (e) states that in relation to the RLDG,

paragraphs g – j of the Rules Consultation Process do not apply. This means that

AEMO do not have to publish a draft report setting out conclusions, reasons for conclusions, the procedure followed in considering the matter, summaries of the issue or invitations to make written submissions.

This would mean that for the ST PASA procedures described above, AEMO would not have to publish a draft report setting out conclusions of the consultation process and would not have to consider submissions on a draft report. Instead, the consultation process for the ST PASA process would be:

1. AEMO must give notice to all parties with which consultation is required, specifying the particulars of the matter for consultation.
2. AEMO must invite written submissions on the matter to be received within 25 business days and consider all valid submissions for no longer than 20 days.
3. AEMO must publish a final report on the matter.

As noted in Section 5.1, AEMO has proposed that these changes will provide greater flexibility to make changes to the requirements for ST PASA. The Commission notes that a possible outcome of the rule change process is a rule that is significantly less prescriptive than the current arrangements.

> QUESTION 5: SINGLE STAGE CONSULTATION PROCESS
>
> 1. Considering that the proposed rule change would result in a rule that is significantly less prescriptive than the current arrangements, do stakeholders agree with AEMO's proposal that the ST PASA procedures should be subject to a single stage consultation process?

5.1.4 Require AEMO to publish ST PASA at least daily

AEMO has proposed that the NER specify that ST PASA be published at least daily.[39] This is not a change from the current arrangements. Clause 3.7.3 (a) currently specifies that ST PASA must be published at least daily by AEMO.

> QUESTION 6: REQUIRE AEMO TO PUBLISH ST PASA AT LEAST DAILY
>
> 1. Do stakeholders agree with AEMO's proposal that the NER should continue to require AEMO to publish ST PASA at least daily?

5.1.5 Require AEMO to prepare various ST PASA inputs

AEMO has proposed that the NER require AEMO to prepare ST PASA inputs, including:

- forecast load and unscheduled generation which takes into account forecasting uncertainties

39 As is the case with the current arrangements, this is a minimum requirement.

- forecast scheduled plant and wholesale demand response unit availability, including any constraints (i.e. energy limits etc.).[40] This is at the DUID, or per unit level
- forecast constraints and notified network outages
- any other factors AEMO considers relevant and are consistent with ST PASA objective.

The proposed changes are different to the current arrangements in the NER, which defines inputs in a more specific manner, and would provide AEMO with more flexibility to define specific inputs to ST PASA relative to the status quo.

The publication of scheduled plant and wholesale demand response unit availability, including any constraints at a DUID, or per unit level, are considered in more detail in section 5.3.

The Commission notes that there are still some prescriptive elements to AEMO's proposed changes. It may be possible that a less prescriptive and more principles-based approach can be taken, whereby the list of inputs is removed, and guiding principles are added to the NER.

QUESTION 7: REQUIRE AEMO TO PREPARE VARIOUS ST PASA INPUTS

1. Do stakeholders agree with AEMO's proposal to specify ST PASA inputs at a high level in the NER?
2. Is there anything that AEMO's proposed changes leave out that is part of the current ST PASA rules/requirements?
3. Do stakeholders have views on any other information that should be included in the required inputs for ST PASA?

5.1.6 Replace references to Scheduled Generator and Market Participant with the generic term, Registered Participant

AEMO has proposed that NER clause 3.7.3(e) be changed to replace references to Scheduled Generator and Market Participant with the generic term, Registered Participant. Registered Participant is defined in the NER as "a person who is registered by AEMO in any one or more of the categories listed in rules 2.2 to 2.7". Categories listed in these clauses include:

- generator
- customer
- small Generation Aggregator
- market Ancillary Service Provider
- market Participant
- metering Coordinator
- network Service Provider
- trader

40 Scheduled plant refers to a scheduled generating unit, a semi-scheduled generating unit, a scheduled network service provider or a scheduled load. Page 1426 of the NER.

- reallocator
- special Participant.

> QUESTION 8: REPLACE REFERENCES TO SCHEDULED GENERATOR AND MARKET PARTICIPANT WITH THE GENERIC TERM, REGISTERED PARTICIPANT
>
> 1. Do stakeholders agree with AEMO's proposal to change references to Scheduled Generator and Market Participant to Registered Participant?

5.1.7 Require AEMO to publish ST PASA information to reflect the objective, with some specific information

AEMO has proposed that the NER require AEMO to publish ST PASA information to reflect the objective and include the following information for each 30-minute period in the ST PASA period:

- load forecasts at a range of PoE levels taking into account forecasting uncertainty
- forecasts of available capacity from individual scheduled plant, including scheduled network services, and wholesale demand response units
- forecasts of PASA availability of individual scheduled plant, including scheduled network services, and wholesale demand response units
- reserve conditions identified in NER clause 4.8.4
  a. low reserve conditions
  b. lack of reserve conditions.

The proposed changes are different to the current arrangements in the NER. Clause 3.7.3 (h) of the NER defines the outputs and information to be published by AEMO in a more specific way. In initial engagements, AEMO has noted that system security information would be published in a similar way as under the current arrangements.

As noted in Section 5.1.5, the Commission considers that the approach proposed by AEMO in relation to publication of ST PASA outputs is also still somewhat prescriptive. The Commission would like to understand stakeholder views on whether a more principles-based approach could be taken.

> QUESTION 9: REQUIRE AEMO TO PUBLISH ST PASA INFORMATION TO REFLECT THE OBJECTIVE, INCLUDING SOME SPECIFIC INFORMATION
>
> 1. Do stakeholders agree with AEMO's proposal to specify information to be published in the ST PASA at a high level in the NER?
> 2. Is there anything that AEMO's proposed changes leave out that is part of the current ST PASA rules/requirements that should continue to be included?

3. Do stakeholders have views on any other information that should be included in the required information to be published for ST PASA?

5.1.8 Definition changes

AEMO has proposed to make some definition changes to the NER as part of this rule change request.

AEMO has proposed to amend the definition of energy constraint to refer to a limitation on the capability of a scheduled generating unit or scheduled load to produce or consume energy in a specified period at the level that would occur if the limitations were removed. The current definition of energy constraint in the NER is "a limitation on the ability of a generating unit or group of generating units to generate active power due to the restrictions in the availability of fuel or other necessary expendable resources such as, but not limited to, gas, coal, or water for operating turbines or for cooling". AEMO notes that the current definition of energy constraint unnecessarily references the generating unit technology type by referencing different fuel sources. AEMO notes that the proposed definition of energy constraint aligns with the "wholesale demand response constraint", a term that will be added to the NER under the Wholesale demand response mechanism rule change.[41] AEMO notes that the proposed changes include the phrase "in a specified period", which if adopted in the final rule should be applied to the definition of wholesale demand response constraint.

AEMO has also proposed to amend the definition of PASA availability to specify that the recall period is to be defined in the Reliability Standard Implementation Guidelines (RSIG), and that this replaces the current 24-hour requirement.[42] The recall period is the period of time over which physical plant capability can be made available in relation to PASA availability. As part of initial discussions, AEMO has noted a range of recall times may be specified. Under the current arrangements, the recall period is 24 hours. Additionally, AEMO has proposed to delete the reference to ambient temperature conditions in the manner described in the procedure prepared under clause 3.7.3 (g). The current definition of PASA availability in the NER is "the physical plant capability (taking ambient weather conditions into account in the manner described in the procedure prepared under clause 3.7.3 (g)) of a scheduled generating unit, scheduled load or scheduled network service available in a particular period, including any physical plant capability that can be made available during that period, on 24-hours' notice".

41 AEMC, Wholesale demand response mechanism, https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism.

42 AEMO, Reliability Standard Implementation Guidelines, https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/reliability-standard-implementation-guidelines.

QUESTION 10: DEFINITION CHANGES

1. Do stakeholders support the proposed changes to the definition of energy constraints?
2. Do stakeholders support the proposed changes to the definition of PASA availability?

5.1.9 General comments

The Commission notes that the approach proposed by AEMO contains certain prescriptive aspects. These are particularly in relation to the inputs and outputs that must be considered in relation to ST PASA. The Commission notes that a principles-based approach may take a less prescriptive approach to these aspects.

In the rule change request, AEMO also notes that an alternative option to support the ST PASA redevelopment is for the NER to include a very detailed specification of the ST PASA requirements. AEMO considers that this is an inflexible approach that is not justified considering the need for NEM systems and processes to adapt more rapidly to changing technology and market conditions.

While AEMO has described the proposed approach as a principles-based approach, the Commission considers that more or less prescriptive approaches are also possible. The Commission is interested in stakeholder views on the optimal degree of prescription or principles in relation to this issue.

The Commission published a paper on rule drafting philosophy in October 2020.[43] The Commission noted that a principles-based approach to Rule drafting is appropriate unless an alternative approach is necessary, however a desire to reduce prescription should not compromise the achievement of good policy outcomes. Additionally, the Commission listed situations in which a principles-based approach is appropriate, as well as the risks to consider when taking a principles-based approach.

The Commission noted that a principles-based approach is suitable when there are new products and services, constant innovation, market participants with significantly different characteristics or capabilities, or diverse participant preferences, and that a principles-based approach may be more accommodating and adaptive to market developments.

QUESTION 11: INTRODUCTION OF A PRINCIPLES-BASED APPROACH TO ST PASA IN THE NER

1. Do stakeholders support AEMO's proposal to introduce a principles-based approach to the NER in relation to ST PASA?

43 AEMC, Rule drafting philosophy, https://www.aemc.gov.au/sites/default/files/2020-11/Rule%20drafting%20philosophy_20201102_0.PDF.

2. Is an alternative solution, such as updating the prescriptions in the NER, a better approach?

5.2 Specification of ST PASA being published over seven days

Issue raised

The current arrangements in relation to ST PASA in the NER specify that ST PASA covers a six-day period from the end of the trading day covered by the most recently published pre-dispatch schedule.[44] AEMO notes that the current ST PASA (referring to PD PASA and ST PASA) is published for a seven-day period. This period is from the end of the most recent dispatch interval until the end of the ST PASA period. AEMO states that the inconsistency between the NER and what AEMO publishes creates ambiguity for market participants.[45]

Proposed solution

AEMO has proposed that the NER specify that ST PASA is to be published for a seven-day period, as currently occurs in practice for the combination of PD and ST PASA. AEMO notes this will align with the current ST PASA.

QUESTION 12: SPECIFICATION OF ST PASA BEING PUBLISHED OVER SEVEN DAYS IN THE NER

1. Do stakeholders support the specification that ST PASA is published over seven days from real-time?

5.3 Publication of generator availability on a DUID level

Issue raised

The current arrangements in relation to ST PASA in the NER specify that AEMO must publish aggregate generating unit availability and PASA availability for each region.[46] AEMO states that a market participant's decision to offer capacity is also informed by knowledge of what other units are available at that time.[47] Availability of other units may impact the decision of a market participant to generate because it needs to assess whether certain generating units will be providing system strength services that are needed for it to operate.

AEMO also notes that as the NEM transitions to higher penetrations of VRE, existing thermal generators may be mothballed, retired from service or require more maintenance outages.

44 Clause 3.7.3 (b) of the NER.
45 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.
46 Clause 3.7.3 (h)(4) and 3.7.3 (h)(4A) of the NER.
47 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.

AEMO considers that this necessitates market participants having information on the available capacity of other units in the ST PASA timeframe.

Further, AEMO has noted that an information asymmetry currently exists between market participants with smaller generation portfolios and market participants with larger generation portfolios. AEMO notes that market participants with smaller generation portfolios may have less information on which to base their operational and commercial decisions.

Proposed solution

AEMO has proposed that this issue could be addressed by it being required to publish generator availability information on a DUID, or per unit level. Providing all market participants with this information is likely to improve the decision-making of smaller market participants with respect to the scheduling of outages.

AEMO states that the provision of this information may have benefits in relation to power system security.[48] AEMO states that due to increasing penetration of variable renewable energy (VRE) generation in the NEM, there are increasing risks to power system security relating to inertia and system strength shortfalls. These risks are sometimes heightened during planned network outages. AEMO notes that management of these issues requires either certain individual units, a combination of certain synchronous generating units or other synchronous plant to be in service during the planned network outage. AEMO states that transparency of generating unit availability will allow NSPs to better coordinate their outages with other market participants.

AEMO also notes that this approach will be consistent with the approach taken in the AEMC's Improved transparency and extending duration of MT PASA rule change.[49] The Commission notes that there was some concern over the proposal to publish generator availability at the DUID level in MT PASA due to competition concerns. This issue is explored in Box 1 below.

BOX 1: COMPETITION CONCERNS IN THE MT PASA RULE CHANGE

On 20 February 2020, the AEMC made a more preferable rule to amend the MT PASA. The rule change request was submitted by ERM Power and sought a number of amendments to the MT PASA to improve transparency and accuracy.

One of the key features of the final rule was the requirement for AEMO to publish information on the generation availability of individual scheduled generating units. Over the course of the rule change process, this issue was raised as a concern by certain stakeholders, including the Australian Energy Regulator (AER), EnergyAustralia and Origin Energy.

The AER considered that the potential for less competitive outcomes resulting from the changes may outweigh the possible benefits of greater transparency in this instance. The AER

48 Rule change request from AEMO on 29 June 2021: Redeveloping short-term PASA for the NEM transition, page 8.

49 AEMC, Improving transparency and extending duration of MT PASA, https://www.aemc.gov.au/rule-changes/improving-transparency-and-extending-duration-mt-pasa.

noted that there was already a high degree of transparency in the NEM, and that publication of generator availability information would create opportunities for coordinated behaviours. The AER argued that further transparency over future price sensitivities may reduce competition and increase the risk of coordinated exercise of market power.

In response to these concerns, the AEMC commissioned Houston Kemp Economists to assess the proposed changes. Houston Kemp considered the conditions required for collusion and how the public provision of information can affect the risk that collusion can occur. Houston Kemp noted that the provision of information does not necessarily lead to an increased risk of collusion, and that it only does so when each of the three conditions necessary for collusion to hold after the information is made public, and one of the conditions is more likely to hold.

Houston Kemp described that collusion can only take place if:

- Firms can reach a collusive agreement.
- The firms that are part of the agreement are individually better off adhering to the agreement, rather than deviating from it. This requires at least that:
  - firms can monitor whether their rivals are adhering to an agreement
  - those firms that do not adhere to the agreement face an expected cost, e.g., lower prices for a period, that is greater than the benefit from not adhering to the agreement
- The firms from outside the agreement are not able to undermine it by supplying in competition with firms that are part of the agreement.

Houston Kemp considered that in relation to the first condition, the more detailed information in the MT PASA could help generators to signal what they would like the tacit agreement to be, i.e. how much to withdraw and when.

Houston Kemp considered that in relation to the second condition, the additional information in the MT PASA could help monitor and punish firms if there was a form of collusion that involved specifying how much generation capacity a firm was going to have available on any one day, however it was not likely that the new information could significantly increase the risk of this form of collusion, because:

- the information in MT PASA can be changed
- the quantity produced becomes available after dispatch, and so can be used to verify whether firms adhered to an agreement to withhold capacity.

Houston Kemp considered that in relation to the third condition, it could not see a way in which the revised MT PASA information would increase external stability. Houston Kemp noted that it is more likely that the additional information would reduce external stability because it would help smaller generators to know when to supply more, undermining any (hypothetical) collusion between the larger generators.

Source: AEMC, Improving transparency and extending duration of MT PASA, https://www.aemc.gov.au/rule-changes/improving-transparency-and-extending-duration-mt-pasa

AEMO has also provided alternative options to address the issues identified. Firstly, AEMO considers that one approach would be to continue with the status quo. AEMO contends that this does not provide sufficient market information to facilitate market participants' operational and market decisions. Secondly, AEMO considers that a different time period could be specified for the publication of individual capacity information. AEMO has suggested that this would exclude the PD timeframe.

QUESTION 13: PUBLICATION OF GENERATOR AVAILABILITY ON A DUID LEVEL

1. Do stakeholders consider that the current arrangements of publishing generator availability information aggregated at the region level in ST PASA is an issue?
2. What are stakeholders' views on AEMO's proposed solution i.e. require the NER to specify that generator availability information be published at the DUID (unit) level?
3. Is there an alternative solution?
4. What are the particular commercial in confidence issues that would arise if generator availability information was published at the DUID level? Would the information be competitively sensitive?

6 LODGING A SUBMISSION

Written submissions on the rule change request must be lodged with Commission by **23 September 2021** online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code ERC0332.

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.[50] The Commission publishes all submissions on its website, subject to a claim of confidentiality.

All enquiries on this project should be addressed to Tom Meares on (02) 8296 1674 or tom.meares@aemc.gov.au.

50 This guideline is available on the Commission's website www.aemc.gov.au.

ABBREVIATIONS

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Commission	See AEMC
DER	Distriuted energy resources
DUID	Dispatchable unit identifier
ESB	Energy Security Board
ESS	Essential system services
MCE	Ministerial Council on Energy
MT PASA	Medium-term Projected Assessment of System Adequacy
PD PASA	Pre-dispatch Projected Assessment of System Adequacy
NEL	National Electricity Law
NEO	National electricity objective
NERL	National Energy Retail Law
NERO	National energy retail objective
NGL	National Gas Law
NGO	National gas objective
RLDG	Reserve Level Declaration Guidelines
RERT	Reliability and Emergency Reserve Trader
SAM	Scheduling and Ahead Mechanisms
ST PASA	Short-term Projected Assessment of System Adequacy
VPP	Virtual power plant
VRE	Variable renewable energy