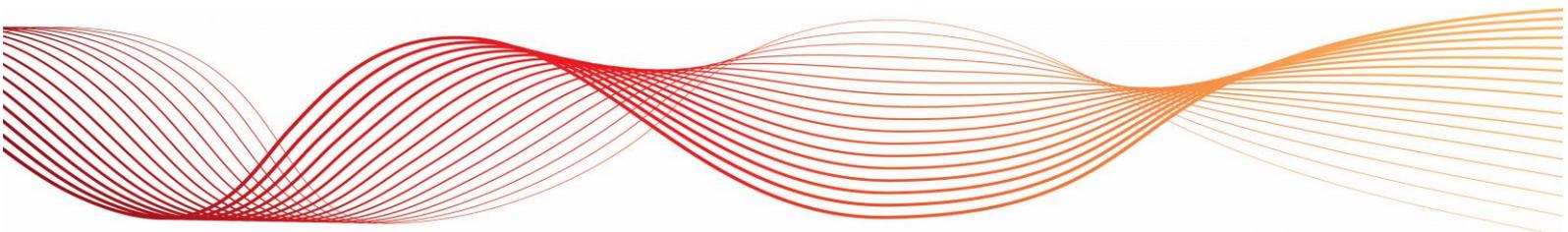




# ISSUES PAPER - ENERGY ADEQUACY ASSESSMENT PROJECTION REPORTING

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## EXECUTIVE SUMMARY

This Issues Paper seeks stakeholder opinion on proposed changes to the frequency of the energy adequacy assessment projection (EAAP) report, made available to Market Participants under rule 3.7C of the National Electricity Rules (NER). AEMO considers that it may be appropriate to reduce the frequency of EAAP reporting, considering that the National Electricity Market (NEM) is gradually evolving away from a dependence on water storage for system reliability, and thereby reducing the need for water shortage assessments.

The need for a study, based on the expectation of continuing drought, appears to have diminished since the EAAP was established. In the absence of drought conditions, and when energy generation inputs are not otherwise constrained, the existing quarterly EAAP reporting requirements may not be necessary to meet the objectives of rule 3.7C.

AEMO still sees the core value of the EAAP as providing the market with a centralised assessment of the impact of constrained generation inputs on energy availability in the NEM.

The need for an EAAP was identified in the 2002–08 eastern and south eastern Australian drought. At that time there was a concern about the impact of water shortages on energy availability, and supply and demand conditions in the NEM were considerably tighter than they are now. The market sought, through the EAAP, to retain and codify the assessments and publications previously provided by NEMMCO's<sup>1</sup> Drought Scenario Investigation Reports (DSIRs).

AEMO has prepared this Issues Paper to facilitate an informed debate about current rule requirements around the EAAP.

AEMO proposes:

- An annual EAAP report – the Rules and EAAP Guidelines be accordingly amended.
- Trigger events for additional EAAP reporting be specified in the EAAP Guidelines (following consultation).
- AEMO to issue a Generator Energy Limitation Framework (GELF) to Scheduled Generators annually, and when a trigger event occurs.

AEMO invites all NEM Registered Participants, jurisdictions and any other interested parties to provide feedback on the application and usefulness of the EAAP in its current form, the appropriate frequency for EAAP publication, and any alternative mechanisms that may be more appropriate to achieve the purpose outlined in clause 3.7C(a) of the NER and the National Electricity Objective (NEO).

Stakeholders are invited to submit written responses on the issues and questions identified in this paper by 5.00 pm (Melbourne time) on Thursday 20 August 2015. Email submissions to [steven.darnell@aemo.com.au](mailto:steven.darnell@aemo.com.au)

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<sup>1</sup> NEMMCO ceased operation on 1 July 2009. Its roles and responsibilities then transitioned to AEMO.

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## 1 Stakeholder Consultation

AEMO is consulting on issues associated with preparation, publication and use of the EAAP, with a view to preparing a final report on the potential for changes to the NER to reflect current requirements. If appropriate, this may lead to a rule change proposal.

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

DELIVERABLE	INDICATIVE DATE
Issues Paper published	Monday 13 July 2015
Submissions due on Issues Paper	Thursday 20 August 2015
Final Report published	Friday 18 September 2015

Prior to the submissions due date, stakeholders can request a meeting with AEMO to discuss the issues and proposed changes raised in this Issues Paper.

Note that Appendix A contains a glossary of terms used in this Issues Paper.

## 2 Background

### 2.1 Inception of EAAP

The EAAP rule was introduced in June 2008 and the first EAAP report published in 2009. The EAAP was derived from the DSIRs developed in 2006 and first published in 2007. DSIRs were a centralised analysis of the drought that was impacting a number of NEM generators. The 2002-08 drought impacted the output of hydro generators and thermal plant that required access to cooling water.

The basis for the current EAAP was set out in the AEMC Reliability Panel rule change proposal: NEM Reliability Settings: Information, Safety Net and Directions.<sup>2</sup> The panel considered that there were five reasons why the EAAP would promote the NEO:

1. Promote the efficient use of electricity services by improving the information provided to Market Participants and stakeholders on the impact of energy constraints on generation. The panel anticipated that this information would lead to market responses which would improve use of constrained generation inputs.
2. Improve supply reliability to consumers and the national electricity system.
3. Reduce prices paid by electricity consumers, relative to what they would otherwise have been. The Panel anticipated that average end-use consumer prices would reduce through the smoothing of high prices in projected energy shortfall periods.
4. Increased efficiency of investment in generating systems through the more efficient use of existing generation, which will further improve reliability and reduce consumer prices.
5. Provide benefits for energy traders in the NEM, as improved projections of energy limitations will improve their ability to determine efficient contracting levels.

<sup>2</sup> Australian Energy Market Commission Reliability Panel, NEM Reliability Settings: Information, Safety Net and Directions Rule Change Proposal, February 2008.

## 2.2 National Electricity Rules requirements

Following on from the AEMC's final rule determination<sup>3</sup>, the current rule 3.7C of the NER was introduced.

Under clause 3.7C(b) AEMO is required to prepare and publish an EAAP every three months.

The purpose of EAAP is to make available to Market Participants and other interested persons, an analysis that quantifies the impact of 'energy constraints' on energy availability over a 24 month period under a range of scenarios. Energy constraints are defined as limitations on the ability of generating units to generate active power due to restrictions in the availability of fuel or other expendable resources.

AEMO is also required to develop and publish the EAAP guidelines<sup>4</sup> in accordance with clause 3.7C(k) of the NER. The current EAAP guidelines set out rainfall scenarios as the subject of the assessment. The low rainfall scenario uses the inflows into the dams during the 2006-07 financial year to simulate a drought scenario.

## 3 The EAAP process

The EAAP provides a probabilistic assessment of energy availability and unserved energy (USE) at a monthly resolution for each NEM region. AEMO puts these requirements into effect in its EAAP guidelines.

Currently, AEMO considers three rainfall scenarios over a two year projection. USE is calculated and published by NEM region.

AEMO runs a bespoke market model over the two years to assess how various rainfall conditions will affect reliability. The main sources of data<sup>4</sup> for the current EAAP model are:

- Historical rainfall – specific periods selected for each scenario, the low rainfall scenario uses inflows from the 2006-07 financial year.
- Demand - most recent National Electricity Forecasting Report (NEFR).
- Generator Availability – current Medium Term Projected Assessment of System Adequacy (MTPASA) availability of generating units.
- GELF – submitted by scheduled generators for each EAAP.

AEMO requests up to date forecasts of generation capacity and energy restriction, via the GELF, from Scheduled Generators for each EAAP report.

## 4 AEMO considerations

The EAAP provides the market with a centralised assessment of the impact of energy constraints on energy availability that may be caused by water or other necessary inputs such as fuel. This need was originally identified in a drought. It was understood that the EAAP would retain and codify the assessments and publications provided by the DSIRs, although the scope of the EAAP extended beyond water shortages alone.

AEMO is concerned however that in times when energy supply is not constrained, there is minimal benefit in operating a quarterly process. The need for such a study appears to have diminished now compared to when the EAAP was established. Yet scheduled generators still incur an administrative cost each quarter preparing GELF parameters.

This Issues Paper seeks stakeholder opinion on the EAAP's reporting requirements. AEMO considers that less frequent EAAP reporting could be more appropriate, noting that the NEM is gradually evolving away from a dependence on water storage for system reliability, thereby reducing the need for water shortage assessments.

<sup>3</sup> Australian Energy Market Commission, Final Rule Determination: National Electricity Amendment (NEM Reliability Settings: Safety Net and Directions) Rule 2008, 26 June 2008

<sup>4</sup> EAAP Guidelines - <http://www.aemo.com.au/AEMO%20Home/Electricity/Resources/Reports%20and%20Documents/EAAP>

## 4.1 NEM dependence on water

From 2009–13, the EAAP regularly identified, under the low rainfall scenario, periods of potential USE that would breach the NEM reliability standard of 0.002%. The NEM reliability standard is expressed in terms of the maximum expected USE, or the maximum amount of electricity expected to be at risk of not being supplied to consumers, in a region for a given financial year.

Since the drought ended in 2008, about 7GW of new generation capacity has been added in the NEM. This new investment has not been in hydroelectricity stations or fossil fuel-fired stations that need large volumes of cooling water to generate electricity. The overall effect is that the market is less vulnerable to drought situations to maintain reliability.

In EAAP reports since September 2013, any potential unserved energy (USE) identified under the low rainfall scenario has mostly been negligible, with all USE easily meeting the required reliability standard. This trend confirms the lower susceptibility of the NEM to USE in a drought scenario.

AEMO has used the EAAP model that includes new generation installed since 2008, to indicate how low initial water storage levels would need to be, at the start of a drought, before the reliability standard was breached. The results suggest that these levels could be much lower than levels seen at the start of the 2002-08 drought. This supports the premise that the NEM is now less susceptible to USE in a drought scenario.

## 4.2 Initial stakeholder feedback

AEMO discussed its concerns about the EAAP with Market Participants at the May 2015 NEM Consultative Forum. Participants at that meeting agreed that EAAP process did not provide useful market information in the current (non-drought) environment, and reducing the reporting frequency would also reduce the regulatory cost for participants (GELF reporting) and AEMO.

Assuming EAAP reporting was amended from quarterly to annual, participants expressed an interest in specifying triggers to initiate extra, more-frequent-than-annual EAAP assessments.

## 4.3 EAAP Trigger Events

If the scheduled EAAP reporting timetable was amended from quarterly to annual, AEMO suggests that triggers for additional EAAP reporting could include the following:

1. Tasmanian water storage falls to 20% of capacity or remains below that level.
2. A Low Reserve Condition in MTPASA.
3. AEMO discretion - an event, or an emerging event, that AEMO considers may impact reliability through energy limitations, including material USE events identified in Annual EAAP reports.
4. A Market Participant informs AEMO of an event or circumstances that it considers may result in a material energy constraint.

AEMO considers that these or other appropriate triggers could be incorporated into EAAP Guidelines. The benefit is that such triggers can then be amended or supplemented (through the Rules consultation procedures) to reflect changes in the environment and technology over time.

## 4.4 Summary

AEMO understands there may be a need for a centralised assessment of energy constraints that could impact energy availability. However, AEMO considers that a quarterly EAAP assessment, in the absence of a water shortage or other trigger event, is most likely a net cost to consumers.

AEMO considers that the original five reasons why the Reliability Panel considered that the EAAP would promote the National Electricity Objective (see Section 2.1) are now diminished because of generation fleet changes.

More specifically, AEMO considers that a quarterly EAAP assessment:

1. Is now less relevant to the NEM due to structural changes in the generation fleet.
2. Provides questionable benefit in return for a material administrative cost.
3. Is unlikely to contribute to the NEO in terms of reliability and security (questionable benefit) and is therefore a regulatory cost.

## 5 AEMO proposal

AEMO proposes that a more balanced approach to EAAP could be:

- An annual EAAP report – the NER and EAAP Guidelines be accordingly amended.
- Trigger events for interim reports, or sustained more frequent reporting during relevant conditions, be specified in the EAAP guidelines (following consultation).
- AEMO issues a GELF to Scheduled Generators annually, and when a trigger event occurs.

This proposal would, in AEMO's view, reduce the regulatory cost imposed on participants and AEMO, and thereby reduce costs to consumers, with no associated increase in risk to reliability and security.

## 6 Feedback

AEMO seeks comment on any aspect of this Issues Paper or other relevant issues associated with producing, publishing and preparing the EAAP. In particular, to further inform AEMO in this matter, AEMO seeks responses to the questions below.

### Questions

1. What do stakeholders consider are the costs and benefits of EAAP?
2. For what purposes do stakeholders use the EAAP?
3. What market response may be initiated through information provided in EAAP reports?
4. How else could information provided by the EAAP be obtained, if needed?
5. What do stakeholders consider the appropriate frequency of EAAP reporting?  
  
For example:
  - a) Quarterly (as per current requirements).
  - b) Annually.
  - c) Annually with triggers for additional reporting.
  - d) Only at the onset, and during, an event, such as a drought.
  - e) Discontinue – EAAP does not provide any benefit even in times of an event such as a drought.
  - f) An alternative arrangement – please suggest.
6. What trigger events do stakeholders consider relevant for additional intra-year EAAP reporting?
7. Are there energy constraints, emerging or potential, that AEMO should consider?
8. How relevant is EAAP given the reduced water dependency in the NEM?
9. For respondents to the GELF, what is the burden of supplying GELF data and would this be reduced if the frequency of reporting was reduced?
10. For respondents to the GELF, what other energy constraints unrelated to rainfall, have affected the ability of your generating units to generate electricity?

## 7 Next stage

AEMO will publish a report summarising the feedback received on this consultation and any proposed action. AEMO will be guided by feedback received as follows:

1. Should stakeholder feedback form a consensus that suggests changes to EAAP rules are justified, AEMO will most likely initiate a rule change request with the AEMC to amend EAAP rules in accordance with feedback.
2. Should stakeholder feedback be disparate, AEMO will form a view on the balance of the feedback. This may result in no further action, a rule change request, or a modified approach.
3. If no material feedback is received, AEMO will most likely initiate a rule change request to amend EAAP reporting requirements, as proposed in section 5.

## Appendix A - Glossary

This document uses a number of terms that have meanings defined in the NER. Those terms have the same meanings in this document. The listed acronyms have the meanings outlined in the table below. The 2015 NEFR meanings are adopted unless otherwise specified.

TERM OR ACRONYM	MEANING
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
DSIR	Drought Scenario Investigation Report
EAAP	Energy Adequacy Assessment Projection
ESOO	Electricity Statement Of Opportunities
GELF	Generator Energy Limitation Framework
GW	GigaWatt
MTPASA	Medium Term Projection of System Adequacy
NEFR	National Electricity Forecasting Report
NEM	National Electricity Market
NEO	National Electricity Objective (section 7 of the National Electricity Law in the schedule to the National Electricity (South Australia) Act 1996).
NER	National Electricity Rules
STPASA	Short Term Projection of System Adequacy
USE	Unserviced Energy