



Reliability frameworks review - directions paper

The AEMC invites submissions on our directions paper on reliability in the national electricity market (NEM)

The Energy Security Board's national energy guarantee proposes to integrate energy and climate change policy for the first time to restore investor confidence. This paper calls for public feedback on complementary market design to support the Guarantee's objective to deliver long-term reliability at least cost.

Context for the review

Australia's energy system is in transition with increasing volumes of variable renewable generation, customer-connected distributed energy resources as well as demand response and storage capacity. Throughout this transition, uncertainty over a nationally-consistent, long-term policy on emissions reduction, has remained a constant presence.

AEMO has recently identified how, in response to these drivers, as well as the increasing impact of weather, it is becoming more challenging to managing security and reliability across the NEM.

Against this backdrop, the Commission commenced a review last year to assess whether the current market design for reliability is still appropriate.

The Energy Security Board's proposal for the national energy guarantee seeks to integrate energy and climate change policy into the NEM to provide investors with the certainty they need to make long-term decisions – which is key for ensuring reliable outcomes in the NEM.

Our directions paper supports this work by considering complementary changes to market design to support the Guarantee's objective in delivering long-term reliability at least cost. It has been prepared to facilitate further consultation and feedback from stakeholders, ahead of a final report due mid-year.

Overview of directions paper

The directions paper seeks stakeholder feedback on four key streams of work in this review, namely, improving the transparency of demand forecasting, and three Finkel Panel recommendations relating to: facilitating demand response; suitability of day-ahead markets; and assessing the need for a strategic reserve.

Facilitating wholesale demand response: The Finkel Panel recommended that the AEMC undertake a review to recommend a mechanism that facilitates wholesale demand response in the wholesale energy market. Demand response supports reliability since it can more efficiently contribute to reliability than building new generation. Demand response also supports the national energy guarantee. The Commission has developed three options that could facilitate more demand response in wholesale markets. We are seeking stakeholder feedback on these options: which option will contribute best to reliability; which option would provide the most flexibility in terms of developing demand response products; and what changes to the regulatory framework and participant systems would be required to introduce each option.

This directions paper provides the next iteration of the Commission's thinking to date, including options to redesign some aspects of the market, and is a complement to the national energy guarantee.

Forecasting and information provision: The purpose of forecasting is not necessarily to predict the future per se, but to provide market participants and AEMO with information that influences their decisions today – be it operational decisions such as when a participant will schedule maintenance or when AEMO should intervene; or longer-term investment decisions, such as whether or not to invest in demand response capability. Forecasting is becoming more complex due to the growth in distributed energy resources, deployment of variable renewable energy resources and more extreme weather days.

Given that forecasting will become more complex, the Commission has proposed three potential improvements which it welcomes feedback on:

- in the short-term, there would likely be benefit in an entity undertaking greater reporting of the differences between forecast and actual outcomes, especially in relation to the 30-minute pre-dispatch, short-term PASA and medium-term PASA forecasts. The transparency that a common source of reporting could provide would be conducive to industry participants and AEMO in their decision making, risk management and, if necessary, point to how to improve the forecasts.
- in the medium-term, consider building on AEMO and ARENA's trial to have wind and solar projects 'self-forecast', and implement such an obligation into the National Electricity Rules (NER).
- in the long-term, there may be benefits in imposing additional obligations on retailers in providing information or forecasting. This would give entities other than the system operator the opportunity to provide their own forecasts, which should increase efficiency by placing the risks with parties that may be better placed to manage them.

Day-ahead market: Day-ahead information – that is, knowing how much electricity will be bought and sold ahead of the next day's physical dispatch – helps market participants and the system operator make better operational decisions. In that regard the Finkel Panel recommended that the suitability of a day-ahead market should be considered to improve reliability. The NEM has many day-ahead features that go to addressing the benefits that might come from a day-ahead market.

We want stakeholder feedback on what additional day-ahead information is needed, and how current day-ahead processes and information provision could be improved to assist in maintaining and improving reliability from the perspective of both market participants and the system operator.

AEMO is currently identifying the existing ahead features of the NEM that may require change and compiling the evidence of the deficiencies that AEMO continues need to be addressed, either through targeted improvements to existing arrangements or through a centrally facilitated ahead market design. The AEMC welcomes this. AEMO's contribution is important to understand what part of the existing market design is inadequate or needs to be improved, as well as the materiality of these matters. This is to help determine the most targeted solution and least cost solutions, whatever those solutions might be.

Strategic reserve: The Commission considers it remains appropriate for the NEM to have some form of strategic reserve to act as a safety net and as one of the last resort alternatives to involuntary load shedding. Recognising this, the Finkel Panel recommended that we consider the need for strategic reserves as enhancement or replacement to the existing Reliability and Emergency Reserve Trader (RERT) mechanism. AEMO has recently submitted two rule change requests with the Commission with regards to the RERT. The first seeks to reinstate the long-notice RERT by June 2018. The second rule change request seeks to enhance RERT as a longer-term solution. The Commission will explore the issue of strategic reserves and potential improvements to the RERT through these rule change processes rather than through the next stage of this review. These rule changes will be initiated shortly.

Background: What is the reliability framework in the NEM?

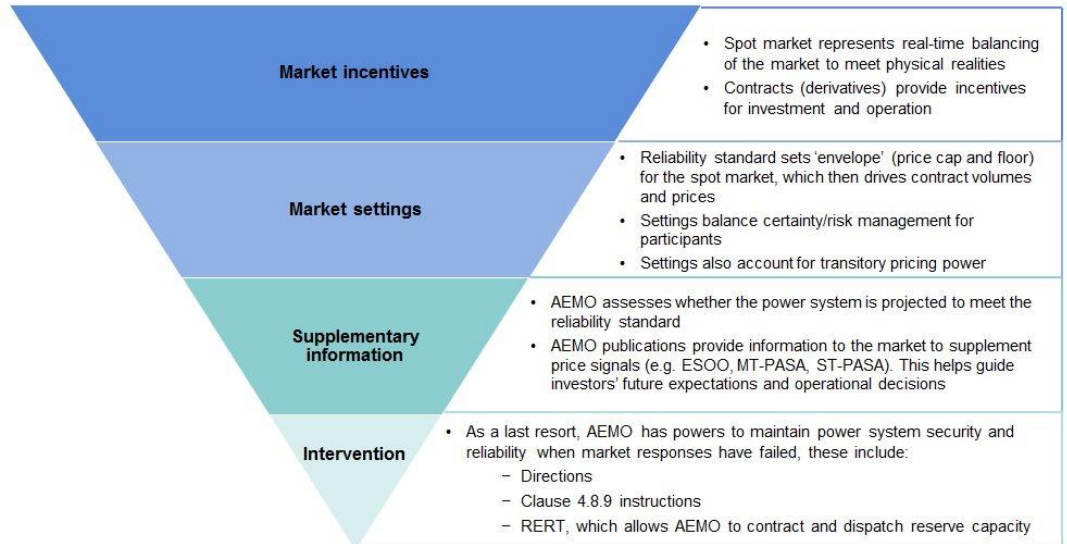
A reliable power system has an adequate amount of capacity (both generation and demand response) to meet consumer needs. This involves longer-term considerations such as having the right amount of investment, as well as shorter-term considerations such as making appropriate operational decisions, to make sure an adequate supply is available

The reliability framework in the NEM is supplemented by a series of mechanisms that allow the system operator to intervene in the market in specific circumstances

at a particular point in time to meet demand. To deliver a reliable supply, the level of supply needs to include a buffer, known as reserves, so that supply is greater than expected demand. This allows demand and supply to balance, even in the face of unexpected changes.

Reliability is delivered in the NEM through efficient investment, retirement and operational decisions that are underpinned by various market structures. The framework is supplemented by a series of mechanisms that allow the system operator to intervene in the market in specific circumstances (see diagram below).

Currently reliability framework



The reliability standard, a key feature of the reliability framework, plays an important role in guiding AEMO in its role as system operator. It is AEMO's responsibility to incorporate the reliability standard in the day-to-day operations of the market.

The concept of reliability is distinct from that of security. A reliable supply to consumers also requires a secure power system and reliable networks. A secure power system is one that operates within defined technical limits. This Review does not seek to address power system security. The Reliability Panel's latest annual review of the security, reliability and safety of the NEM found that while we have a reliable supply, it has become harder to keep the power system stable, that is in a secure operating state. The Commission is considering system security issues through its *System security work program*. Network reliability is addressed through different, jurisdictionally based frameworks.

Consultation and next steps

Submissions to this directions paper are due on **18 May 2018**, a date chosen so we can meet the COAG Energy Council's timeframes for its implementation plan of the *Independent Review into the Future Security of the National Electricity Market*.

The final report including recommended actions will be published in mid-2018.

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