



Investigation into system strength frameworks in the NEM

The Australian Energy Market Commission (AEMC or Commission) has released a discussion paper to formally initiate an investigation into ways to evolve the current system strength frameworks.

The current frameworks were put in place in 2017 to address immediate system strength issues. They were successful at keeping the system secure. The pace of the power transition means the time has now come to adjust and expand the system strength frameworks given the rapid connection of large numbers of new non-synchronous generation. These frameworks need to evolve and be agile and flexible given the transition underway.

The investigation is looking at potential changes to system strength frameworks to meet current and future needs for system strength efficiently and effectively. These changes are required given the transition of the power system to a lower emissions future.

Scope of the system strength investigation

The Commission's investigation into the system strength frameworks is looking into the ongoing effectiveness of the current frameworks for the management of system strength. In doing so, the Commission is looking at whether these frameworks can be evolved such that system strength provision can be made more efficient and effective.

This work is critical to the maintenance of system security, as well as making sure that there will be sufficient energy supply for consumers over the long run. System strength is a service essential to keeping the system safe and secure.

This investigation is part of the ESB's broader system security and market development work program. This work program looks to design a robust and resilient power system, for now and the future. System strength is a critical system security service and is pivotal to facilitating the power system transition underway. The Commission is working closely with the ESB and other market bodies to coordinate this work.

In commencing this review, the Commission will consider a number of key issues and areas for potential improvements. These include whether changes could be made to:

- More effectively identify and address low levels of system strength as they arise in NEM regions, to help maintain system security at the lowest possible cost.
- Allow for the provision of increased levels of system strength to enable greater output from lower cost generation sources, to deliver lower cost electricity for consumers.
- Increase the transparency and efficiency for remediating the system strength effects from large numbers of new connecting generators. This will help make the process of connecting generators more effective, given the transition to a power system with much higher penetrations of renewable, non-synchronous generation.

Discussion paper — commencing the investigation

The Commission has commenced its investigation with a discussion paper, which sets out some key issues related to system strength in the NEM. This review will progress and coordinate pending and expected rule changes that relate to the system strength frameworks.

This paper is intended to describe system strength, explore issues with the current framework, and map out some potential models to provide system strength in future. More specifically, it:

1. sets out the key issues with the current system strength frameworks, including the “do no harm” obligation on connecting generators and the minimum system strength frameworks,
2. explores some key concepts and considerations relevant to the provision of system strength, including exploring what system strength is, why it is needed, how it is provided, and the physical attributes of the service, and
3. sets out, at a high level, some potential models of how the system strength frameworks might be evolved going forward. These models include different regulatory approaches to planning for, procuring, pricing and paying for system strength.

The discussion paper is designed to inform stakeholder thinking on this issue and to provide an avenue for consultation on some current and emerging system strength issues.

A submission template has been provided to assist stakeholders making submissions to the discussion paper. It contains some explicit questions that the Commission would like stakeholder input on and is designed to assist submissions. It is not intended to limit stakeholder input; stakeholders are invited to provide any other comments on any other issues related to system strength.

Background — current system strength frameworks

The Commission introduced frameworks in 2017 for the management of system strength. These frameworks were successful at keeping the system secure. The pace of the power transition means the time has now come to adjust and expand the system strength framework given the rapid connection of new generation.

In September 2017 the Commission made the *Managing power system fault levels* final rule. The rule that established two system strength frameworks:

1. The minimum system strength framework, which obligates transmission network service providers (TNSPs) to procure system strength services needed to provide the levels determined by AEMO, if AEMO has declared a shortfall.
2. The ‘do no harm’ framework, which requires AEMO to develop system strength impact assessment guidelines that allow TNSPs and generators to assess the impact of a new generator connection on system strength.
 - From this, the new connecting generator is obligated to “do no harm” to the security of the power system, in relation to system strength.
 - As such, if the new connecting generator has a negative impact on the fault level (a measure of the level of system strength in that area), then that generator must remediate that impact.

The Commission's investigation will assess these frameworks, with a view to evolving them to facilitate the power system transition in an effective and efficient way.

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