



System Security Market Frameworks Review

Commencement of consultation

The AEMC has commenced the first stage of consultation as part of its review of the market frameworks for system security in the National Electricity Market.

Background

The electricity industry in Australia is undergoing a fundamental transformation. The last decade has seen a rapid rise in the penetration of new generation technologies, such as wind farms and rooftop solar. In the past, these technologies accounted for only a small fraction of total electricity supply. Now they are a critical part of our power system, and their significance is continuing to grow.

As these technologies make up an increasing proportion of Australia's electricity needs, new approaches to maintaining power system security will be required. To support the continuing transformation of the National Electricity Market (NEM) the Australian Energy Market Commission (AEMC) has initiated a review into the regulatory frameworks that affect system security in the NEM. This review will also encompass and progress three recent rule change requests that relate to system security.

The AEMC has published a paper to facilitate consultation on the System Security Market Frameworks Review and the related rule change requests. The consultation paper sets out the AEMC's proposed approach, describes the current and potential future issues related to power system security in the NEM, and identifies a number of questions to facilitate the consultation process.

This consultation paper is the first stage of stakeholder consultation on both the Review and the three related rule change requests. A separate consultation paper has been published to assist stakeholder consultation on rule change requests also received from the South Australian Minister for Mineral Resources and Energy which relate to emergency frequency control schemes.

Maintaining system security

The Australian Energy Market Operator (AEMO) is responsible for maintaining power system security. Power system security refers to AEMO scheduling and operating the power system in a secure and safe operating state, and returning the system to such a state following supply disruptions. System security deals with the technical parameters of the power system such as voltage, frequency, the rate at which these might change and the ability of the system to withstand faults.

Large spinning conventional generators, such as coal, gas and hydro, resist large rapid changes in frequency and increase system strength. These generators are synchronised to the frequency of the system and support the stability of the system by working together to maintain a consistent operating frequency and maintain the strength of the system in localised networks. Currently, less conventional forms of electricity generators connected to the national electricity system, such as wind and rooftop solar, are not synchronised to the grid and are therefore limited in their ability to dampen rapid changes in frequency.

Historically, most generation in the NEM has been synchronous and, as such, the system security services provided by these generators have not been separately valued. As the generation mix shifts to more non-synchronous generation, these services are not provided as a matter of course giving rise to increasing challenges in maintaining the power system in a secure state. Some non-synchronous generators may have capabilities to respond rapidly to sudden changes in electricity supply or consumption. The Review will consider the need for additional markets and frameworks to create incentives for the provision of these services.

Review process

The System Security Market Frameworks Review will draw upon the work being undertaken by AEMO as part of its Future Power System Security (FPSS) Program, initiated in December 2015. AEMO has undertaken substantial work on identifying and prioritising current and potential future technical issues to maintaining system security. AEMO has also identified an initial range of technical solutions to these issues and is undertaking further significant analysis to determine the capability of these solutions to meet the requirements of the power system.

The AEMC's Review will identify the changes to market and regulatory frameworks that will be required to deliver the technical solutions identified by AEMO. These changes may include, but are not necessarily limited to, different mechanisms to competitively procure the required system security services, possible changes to standards or the establishment of new standards, or changes to the roles and responsibilities of market participants.

Three rule change requests have recently been received which will be progressed concurrently and in coordination with the System Security Market Frameworks Review. The South Australian Minister for Mineral Resources and Energy and AGL have both submitted rule change requests proposing the introduction of new mechanisms to procure additional system security services to support power system frequency. The South Australian Minister for Mineral Resources and Energy has also submitted a rule change request to address the reductions in system strength.

The AEMC will consider the rule change requests as well as undertake the Review. The output of the Review will be a report to the COAG Energy Council highlighting rule changes and technical changes made in response to the rule change requests received, and recommendations for further action where required, including possible changes to policy or legislative frameworks or recommendations in relation to potential future rule change requests.

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