



Efficient management of system strength on the power system

The AEMC has made a more preferable draft rule that will provide a strong power system and a streamlined connection process, resulting in lower cost energy for consumers.

System strength is a critical service in the power system that keeps the grid stable. Historically, it has been supplied by synchronous generators, such as coal, gas and hydro. However, as these generators leave the market or reduce their operations the supply of system strength has reduced. New inverter based resources, such as wind, solar and batteries, demand system strength. The combination of these two trends means that system strength has been declining in the system in recent years, which means we need to rethink the way the service is provided in the NEM.

There are already frameworks in the NEM to provide system strength. These were introduced by the Commission in 2017. However, these frameworks have been shown in practice to be reactive and slow to provide system strength, resulting in a lack of this essential system service.

Not having enough system strength can cause major problems, both in terms of managing the security of the system and of how electricity is supplied, increasing costs to consumers.

The Commission's draft rule

The AEMC has made a more preferable draft rule (draft rule) in response to TransGrid's rule change request. It evolves the current framework for system strength provision.

The draft rule addresses the urgent need to make it simpler, faster and more predictable for new generation, renewables in particular, to connect to the grid and keep supply as secure as possible. It does this by introducing three main elements:

- **Supply side:** A new obligation on TNSPs, working closely with AEMO, to provide system strength when and where it is needed. System strength will be provided as a prescribed transmission service, with the TNSP required to meet a system strength standard at certain locations on its network.
- **Coordination:** A charging mechanism, so those parties who use the service pay for it. This would provide connecting parties with a choice between paying to use the system strength provided by the TNSP, or providing their own system strength to remediate their impact.
- **Demand side:** New access standards for relevant generators, loads and market network service providers, to ensure that future connecting parties' plant have a minimum level of system strength performance.

The Commission recognises stakeholder feedback of the need to quickly evolve the system strength framework to mitigate against issues of the existing framework. The proposed draft rule requires an inter-related sequence of events to occur for proper implementation, which includes the preparation of materials such that:

- Supply side can commence on 30 September 2022.
- Demand side and coordination can commence on 15 March 2023.

Benefits of the Commission's draft rule

These changes would support the power system transition, particularly the rapid uptake of renewable, inverter based resources like batteries, wind and solar. The new arrangements are purposefully setting us up for the future. They are intended to provide greater certainty that efficient levels of system strength will be available, when and where it is needed, while

promoting the flexibility that is needed as the system changes.

The Commission considers that these reforms are in the long term interests of consumers as they will support more efficient connection of new generation and deliver a more secure energy system. This will help to keep prices as low as possible for consumers.

The draft rule seeks to address the key issues with the current frameworks.

Consultation

The Commission welcomes stakeholder feedback and engagement. The closing date for submissions is 17 June 2021.

To assist this process, a public forum on this draft determination will be held on 6 May 2021, and you can register attendance on our website.

Background: the rule change request

TransGrid lodged a rule change request on 27 April 2020 to amend the National Electricity Rules. The rule change request identified issues similar to those identified in our March 2020 *Investigation into system strength frameworks in the NEM: Discussion paper*.

TransGrid recognised system strength was an urgent issue to address in the NEM, and identified three principal issues with the current frameworks:¹

- The lack of ability to effectively coordinate solutions in a timely manner to address system strength issues across the 'do no harm' and minimum frameworks, which creates the risk of feedback loops and inefficiencies. This includes the increased risk of costly interventions in the NEM to maintain security.
- The additional time and cost for connections due to the system strength impact modelling and remediation requirements of the 'do no harm' obligation.

At a high level, TransGrid proposed to remove the 'do no harm' obligation as well as to make amendments to the minimum system strength framework, including:

- AEMO setting the system strength requirement for identified fault level nodes in the system.
- An independent body (e.g. the Reliability Panel) would set a probabilistic planning standard.
- TNSPs would be obligated to maintain this standard for each identified node in their network.

Interaction with ESB's Post 2025 market design project

This draft rule is closely related and linked to the redesign of the national electricity market currently being undertaken by the energy market bodies through the Energy Security Board (ESB).² The ESB's workstream on essential system services is considering how four key services are to be provided for the future power system: frequency control, operating reserves, inertia and system strength; all of which are critical to keeping lights on the NEM.

This draft rule proposes arrangements to deliver the system strength component of this workstream, and is consistent with the direction of the ESB's post 2025 work. Specifically, the draft rule is consistent with the ESB's view that, due to current technological limitations, system strength should be provided through a structured procurement mechanism.

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¹ TransGrid, 2020, *Efficient management on system strength on the power system* — Rule change proposal, pp. 5-9, 27 April 2020.

² The market bodies are the AEMC, the Australian Energy Market Operator (AEMO) and the Australian Energy Regulator (AER).

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29 April 2021