AEMC

INFORMATION

Capacity commitment mechanism and synchronous services markets

Overview

The Commission has published a directions paper on options for the scheduling and procurement of essential system services to ensure the power system remains secure in response to rule change requests from Hydro Tasmania and Delta Electricity.

Essential system services are critical to maintaining overall power system security and reliability by meeting core power system requirements. The national electricity market's (NEM's) significant transition away from ageing thermal synchronous fleets, which the power system was designed around, toward increasing amounts of renewables and batteries is pressing the limits of current system security and operational experience. While historically these synchronous generators (such as large coal, gas and hydro generators) supplied essential system services simply as a by-product of energy, new non-sycnhronous generators (such as solar PV, wind and batteries) do not automatically provide these services.

Consequently, under the current market design, which does not explicitly value all essential system services, the changing generation mix is providing fewer of these services.

This means that the Australian Energy Market Operator (AEMO) is increasingly making operational decisions, such as directing generators to be online when they wouldn't otherwise be to provide these services, to keep the system secure. These tools were designed to be used as a last resort mechanisms. Reliance on these increases costs to consumers, and also places increased risk on the ability of the system to be secure. A better approach is therefore needed, to provide secure outcomes but at lower costs to consumers, as well as incentivising parties to provide these services.

The purpose of the directions paper is to consider mechanisms that efficiently value, procure and schedule essential system services that are not currently procured through the real-time market in order to address these issues.

Commission's approaches to addressing the problem

The Commission has considered two broad approaches to scheduling resources to ensure the power system remains secure and consumer costs are minimised:

- a **market ancillary services (MAS) approach** – which would introduce new services to be scheduled through the pre-dispatch engine to allow it to produce dispatch schedules that result in secure dispatch, and
- a **non-market ancillary services (NMAS) approach** – which would introduce new services to be procured and scheduled in an optimisation approach outside of the spot market, to ensure secure dispatch in a more efficient manner.

Both of these approaches are market-mechanisms designed to meet system requirements not currently procured through existing ancillary service categories to support the security of the system and could also allow the scheduling of certain contracts into the NEM, such as those for system strength. The solution proposed by Hydro Tasmania can be considered a MAS approach, whereas the approach proposed by Delta can be considered an NMAS approach. The recommendation for a unit commitment for security (UCS) and synchornous services mechanism (SSM) from the ESB is also an NMAS approach.

The Commission's initial preference is for the second approach (NMAS) - which is aligned with the recommendations from the Energy Security Board (ESB) for new market

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mechanisms to support efficient scheduling and dispatch by AEMO. This is preferred since it is more likely to result in a more efficient scheduling and dispatch of generators, relative to current arrangements and provide AEMO with greater confidence that the system will be secure, ultimately lowering costs to consumers. The Commission will continue its evaluation of both approaches, taking into account stakeholder feedback provided to this paper.

Consultation

The Commission invites stakeholders to make submissions for a period of 6 weeks, with submissions due by 21 October 2021. Submissions can be lodged online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function.

The Commission will hold a webinar briefing on this directions paper as part of our consultation and engagement with stakeholders on these rule changes. This briefing will be held on Monday, 20 September 2021. Interested stakeholders are invited to register via the Commission's website at: www.AEMC.gov.au.

Background: the rule change requests

Hydro Tasmania

On 19 November 2019, Hydro Tasmania submitted a rule change request to amend the National Electricity Rules to create a market for "synchronous services". These synchronous services include inertia, voltage control and fault level/system strength.

Hydro Tasmania proposed to address the shortage of “inertia and related services” in the NEM by integrating the dispatch of a “synchronous services” with the existing energy and FCAS spot markets. Hydro Tasmania proposed to do this by changing the formulation of the constraints that are applied to the NEM dispatch engine (NEMDE).

Delta Electricity

On 4 June 2020, Delta Electricity submitted a rule change request to amend the National Electricity Rules to introduce an ex-ante, day ahead capacity commitment mechanism and payment so that generators or demand response providers remain available to offer operational reserve and any other system security or reliability services AEMO may require to meet its security and reliability objectives.

The proposed capacity commitment mechanism would provide a payment to non-peaking dispatchable generators to remain online at their minimum safe operating level (MSOL) should they be needed for system security or reliability purposes based on AEMO forecasts during the pre-dispatch process.

Interaction with ESB's Post 2025 market design project

These rule changes formed part of the ESB's Essential System Services (ESS) and Scheduling and Ahead Mechanisms (SAM) workstream.[1] The rule change processes dovetailed with the ESB's post-2025 market design process by advancing these issues that are urgent in nature.

The ESB has set out that its vision is to have new arrangements to value the services needed to support the changing mix of resources in the NEM. Ideally these changes should be spot market arrangements, combined with co-optimisiation where possible, and the market should progressively move towards spot market provision for services. However, there are some services that may be better suited to structured procurement where spot market arrangements may not be appropriate (either now or ever).

The work in this directions paper is consistent with the ESB's work.

Interaction with the AEMC's rule change on system strength

The draft determination for the AEMC's Efficient management of system strength on the power system rule change (System strength draft rule) evolves the existing system

1 ESB, Post 2025 market design options - Final advice to Energy Ministers, July 2021

strength framework.

Among other things, the changes will require transmission network service providers (TNSPs) to meet a new system strength planning standard. In doing so, the TNSP may choose to enter into contracts with generators or other market participants which are able to provide services which enable the TNSP to meet its obligations under the standard.

The options set out in this paper build on this determination, by developing solutions that will enable any contracts entered to under the system strength framework in planning timeframes to be better utilised in operational timeframes, meaning that consumers will get the most value out of these contracts. The options set out in this paper also consider a wider range of essential system services than just system strength.

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2 September 2021