



Consultation on a market mechanism for inertia

Stakeholder submissions invited on consultation paper

The Australian Energy Market Commission has commenced consultation on a proposed approach for introducing a market mechanism for inertia.

A market mechanism for inertia

The widespread deployment of non-synchronous generating technologies, such as wind farms and solar panels, is having impacts on the operation of the power system. These technologies have low or no physical inertia, and are therefore currently limited in their ability to dampen rapid changes in power system frequency, which is needed in order to maintain a secure power system.

On 27 June 2017, the AEMC published its final report on the *System security market frameworks review*. A key recommendation in the report was to introduce a market based mechanism to realise the benefits that could be obtained through the provision of inertia.

The AEMC has published a consultation paper on a rule change request submitted by AGL proposing the establishment of an inertia ancillary service market.

Two rule change requests to address power system frequency issues

The AEMC recently made a draft rule with respect to a rule change request submitted by the South Australian Government on *Managing the rates of change of power system frequency*. The draft rule proposes to place an obligation on Transmission Network Service Providers (TNSPs) to procure the minimum levels of inertia, or alternative frequency control services, required to maintain the secure operation of the power system.

An obligation on TNSPs to provide this service will establish confidence that system security can be maintained in all regions of the National Electricity Market (NEM).

However, the draft rule does not provide a mechanism to realise the market benefits that could be obtained through the provision of inertia at levels above the minimum level of inertia required to maintain secure operation of the power system.

The Commission considers that the ability to maintain power system security in an efficient manner would be enhanced by the development and introduction of a mechanism to obtain and pay for inertia and that this would further contribute to the NEO.

The AEMC is currently assessing a rule change request from AGL proposing the establishment of an inertia ancillary service market. A market mechanism will complement and build on the certainty created through the TNSP obligation by providing the ability to continuously adjust the level of service provision in real time to maximise efficiency.

Ultimately, the combined TNSP obligation and market mechanism will form an enhanced framework which efficiently balances certainty and flexibility for the management of system frequency in the long term interests of consumers.

This consultation paper explains the Commission's findings to date with regards to inertia, explains the interactions between this rule change request and the *Managing the rate of change of power system frequency* rule change request and sets out for further consultation a number of design options associated with the introduction of a market mechanism to reward the value of inertia.

The Commission is seeking stakeholder feedback on a market based mechanism to realise the market benefit of inertia. Submissions are due by 3 October 2017.

The proposed market sourcing approach

In the final report for the *System security market frameworks review* the Commission presented a proposed design for a market-based mechanism to reflect the value of inertia. This design was based around inter-regional RoCoF constraints.

Prior to a system disturbance, AEMO can minimise the resulting initial frequency change by either constraining the power system to minimise the potential size of the disturbance or increase the level of inertia in the system to resist the initial frequency change.

The Commission understands that, in the near future at least, RoCoF constraints on the mainland are most likely to be applied on an inter-regional basis and, that by restricting flows between regions, these constraints are likely to have significant economic impacts. As the value of additional inertia to alleviate inter-regional RoCoF constraints is related to the reduction in price separation between two regions, the proposed approach would reward inertia provision by making use of the IRSRs that accrue on interconnectors.

These payments would act as a signal to guide the enablement of inertia in the short term, and investment over the longer term. There would not be a separate inertia market, rather market participants would take expected inertia payments into account in structuring their energy market offers and making commitment decisions. Generators dispatched in the energy market who were providing inertia would receive inertia payments in addition to energy market payments.

A market-based mechanism would offer an open and transparent approach that would best facilitate competition in the provision of inertia. It would also be flexible in that it would allow the level of the service to vary over time to adapt to changing market conditions. Increases in the expected inertia price would incentivise greater provision, and this market signal, which would be provided to all market participants, should allow the costs and benefits of inertia provision to be efficiently balanced.

While implementation would not be trivial, much of the framework for pricing and settlement is already in place. However, such a mechanism will need careful design due to the potential impacts on the operation of the energy and ancillary services markets.

The AEMC's *Frequency control frameworks review*, initiated in July 2017, will also allow any longer-term issues associated with optimisation of inertia with energy and ancillary services to be considered separately.

The Commission is seeking stakeholder feedback on this consultation paper. Submissions are due by 3 October 2017.

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