15 February 2017

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

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REF: EPR0053 - SYSTEM SECURITY MARKET FRAMEWORKS REVIEW – INTERIM REPORT DEC 2016

Dear Mr Pierce

Origin Energy Limited (Origin) welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC's) Interim System Security Market Frameworks Report.

The key points discussed in our submission are:

- While there are a number of options to manage system security in the short term, these are unlikely to be sufficient over a longer time horizon.
- The Reliability Panel should be tasked in setting the parameters for how AEMO uses the tools it has at its disposal in managing system security, including the proposed new 'protected event'.
- In the medium to long term, a market based approached is likely to be the most efficient means of incentivising the provision of inertia and fast frequency response (FFR) in light of system security issues presented by the current energy transformation.
- The five minute and contracting market options should continue to be developed so as to gain a better understanding of the trade-offs involved if either is adopted.

Managing system security in the short term

There are currently a number of options for addressing short term system security risks in the NEM. These include AEMO directions, generator and interconnector constraints, and the existing frequency control ancillary services (FCAS) markets. The introduction of a new category of 'protected event' should also enable AEMO to better manage events that have a potentially high market impact despite a low probability of occurrence. Origin supports the Reliability Panel being made responsible for defining the conditions under which a non-credible contingency could be classified as a protected event. The Panel's responsibilities could include:

- Determining which scenarios can be considered by AEMO as protected events;
- Developing an economic framework that assesses the level of risk versus the likelihood of the event occurring; and
- Determining the final operating state that AEMO must ensure when the reclassification of a non-credible contingency as a protected event occurs. Implicit in this is that the Panel would need to prescribe the rate of change of frequency (RoCoF) to which AEMO must manage the system and the extent to which the market should be constrained to maintain this. In all of this AEMO should be given sufficient flexibility to manage the system as circumstances change.

Generally also, if the use of constraints and market directions is to become more commonplace in managing system security it may be useful to outline some parameters around the economic tradeoffs that AEMO should take into consideration when applying these measures. For example the cost of constraining off non-synchronous plant may need to be weighed against directing on synchronous generation. Again, the Reliability Panel would be best suited to set these parameters.

A long term market based solution is required

While the above measures may be effective in the short term, they are unlikely to be sufficient going forward with the increasing entry of non-synchronous generation and the retirement of aging synchronous assets. It is clear that some combination of inertia and fast frequency response (FFR) is required to maintain system security and prevent uncontrolled frequency fluctuations. It is important that we first have a thorough understanding of the magnitude of the problem including the appropriate levels of each service that must be procured. AEMO is best placed to carry out this work which would need to cover off of a number of areas including:

- Assumptions around the timing of synchronous generator exit and the entry of non-synchronous plant;
- Assumptions regarding market entry, costs, and capability of new technologies for the provision of FFR and inertia;
- Inertia and FFR requirements in an islanding scenario where a region is disconnected from the rest of the NEM; and
- Locational system strength issues due to a reduction in the stock of synchronous generation

A clearer understanding on the above issues would help guide decisions regarding the need for, and design of, any additional incentive mechanisms for ancillary services. The AEMC has put forward a number of options (See table 1) for consideration in the Interim Report, each with strengths and weaknesses.

Table 1: AEMC system security options

System Security Option	Pro's	Con's
Contract Market	- Long term price certainty for contracted parties. -Transparent total cost of inertia and FFR services.	-Potential for over or under procurement of service
5 Minute Market	-Transparent pricing mechanism. -Builds on familiarity with current ancillary services market model. -Responsive to short term market changes. -A bid stack will ensure lowest priced service is procured first.	- Lack of long term financial certainty with no historical prices available Increases the number of ancillary services markets could increase complexity. -Inertia market may not warrant 5 minute granularity
Generator Obligation	-Facilitates a causer pays approach by incentivising non-synchronous generation to cover their system security obligations.	-Limited flexibility to adjust the obligation over time could lead to it be over or under specified. Could introduce procedural complexity where the mismatch in generational profiles between synchronous and non-synchronous plant. -Price determination opaque
TNSP Provision	-Could underpin a certain level of investor certainty depending on	-Non-market based approach, which may not result in a least cost

	the form of the contract	outcome. -Potential for over development or additional procurement of services.

As a general principle Origin is supportive of a market based approach that we consider most likely to satisfy a number of key objectives, including:

- Facilitating the provision of the services at the lowest cost, including through co-optimisation in their procurement
- Enabling technology neutrality through the encouragement of existing and potentially new technologies.
- Providing the balance between investment certainty and flexibility to adapt to the changing market environment through an appropriate signal to incentivise the provision of the services.

The AEMC has set out two market based approaches amongst its list of options – a five minute dispatch market; and a competitive contracting process. We discuss both of these in the below table

Five minute market

- The nature of the market should provide for the most accurate and transparent price signal as prices would reflect the supply and demand of each service dynamically.
- It is unclear, however if a five minute market would provide sufficient certainty to facilitate adequate levels of FFR or inertia investment. In the case of synchronous generators, a five minute market is unlikely to provide enough clarity around future returns where a generator is contemplating retirement. Understanding how an inertia market might influence a generators decision to withdraw from the NEM (or to retrofit synchronous condensers), including what payment levels might facilitate such decisions, will be important.
- There is a possibility that an additional five minute market could add to market complexity with traders having to manage a number of other ancillary services market in addition to the energy market.

Contract market

- Contracting could allow for the lowest cost approach to providing the services if there are sufficient market participants.
- The contracting process runs the risk of over or under procurement of services; though we would expect that policy makers will take a conservative approach, which increases the risk of over-procurement.
- Over-procurement of inertia would increase costs and could inhibit technological innovation of FFR.
- Depending on the time frames involved, contracting is likely to provide greater certainty for potential suppliers of inertia and FFR. A contract market may be best suited to providing the long term financial certainty that would be required to underwrite technological development and commercial sized installations. For example a contracting process may better suit the market for FFR response given that the market for these services are in their infancy and would potential investors would require certainty

In our view, the above discussion highlights that there are likely to be tradeoffs in the adoption of a five minute or contracting market. Given this Origin suggest that the next step in the process focuses on the continued development of both models for further consideration.

Origin looks forward to continuing to contribute towards this important market reform process. Should you have any questions or wish to discuss this information further, please contact James Googan on james.googan@originenergy.com.au or (02) 9503 5061.

Yours sincerely,

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