16 September 2016

Frank Montiel
C/O Stakeholder Relations
AEMO
StakeholderRelations@aemo.com.au

Dear Frank

Re: Future Power System Security Program progress report

Thank you for the opportunity to respond to AEMO's Future Power System Security Program progress report and recent Roadshows. We understand that AEMO is studying current and future system security challenges in order to promote short and long term solutions to any system security challenges.

Stanwell considers that system security is essential and congratulates AEMO for its investigative work in this area. We believe that previous policies have emphasised "energy" while neglecting to value the other electricity market services which are required to maintain a reliable electricity supply. Many of these services are provided by synchronous generators with little or no compensation.

Relationship with other regulatory processes

AEMO's current work on system security is interrelated with other current reform work. This includes the five minute settlement proposal, the proposal for demand to bid into dispatch and the AER's approach to compliance with dispatch instructions.

The five minute settlement proposal[1] would incentivise generator response which could be delivered within five minutes ahead of generator response which requires longer lead times. Under normal conditions, most peaking plant require time to synchronise to the grid[2]. Stanwell is concerned that a market design which does not appropriately incentivise peaking generators is unlikely to be sustainable. This is especially concerning as peaking generators are considered to be essential to support the transformation to a renewable energy future.

[1] http://www.aemc.gov.au/Rule-Changes/Five-Minute-Settlement

[2] For example, Mt Stuart Units are typically offered with a requirement for 18-21 minutes between the receipt of a start signal and the first energy being exported. Some peaking generators are kept synchronised but not exporting in order to provide a fast response, such as Kareeya Power Station. Such a regime is typically not costless and is a commercial decision by the provider.

In addition, if the 5 minute settlement proposal incentivises large amounts of very fast response, this is likely to add to existing difficulties in managing system frequency. The problem will be exacerbated if this fast response is provided in a non transparent, non predictable manner. This is precisely what will happen if large loads and new technologies are not required to bid into dispatch or register as generators.

AEMO has listed visibility of the power system as a high priority challenge requiring increased information from market participants. Stanwell believes that the proposal for large, price responsive demand and non-scheduled generators to bid into central dispatch[3] would assist AEMO to better manage the power system. The proposal would provide AEMO with increased transparency on market participant behaviour and therefore the ability to produce more accurate pre-dispatch forecasts and dispatch outcomes. The proposal would not however assist in providing transparency to AEMO in relation to the behaviour and characteristics of aggregated small loads, storage devices and small generators.

The AER has recently entered into a court enforceable undertaking with CS Energy[4] in relation to compliance with Rule 4.9.8 of the NER. In the undertaking, CS Energy explains that the relevant generators were set to inversely change output level in proportion to system frequency. This occurred automatically notwithstanding that the units had not been instructed by AEMO to provide regulation FCAS.

As a result of the settings on CS Energy's units, CS Energy was providing frequency services to the market at no cost to participants. This is the manner in which many synchronous generators operated in the past, both for efficient operation and to minimise FCAS causer pays charges. Since the investigation by the AER, Stanwell understands that multiple generators have now changed their settings so as to prevent automatic deviations in response to changes in system frequency. This action has therefore resulted in less automatic frequency control inherent in the NEM. In this environment, it is important that markets are designed to appropriately value frequency services.

Market based solutions

Stanwell prefers market based solutions compared with regulatory intervention in relation to the system security challenges revealed by AEMO. AEMO has identified the following technical solutions for the identified challenges[5].

[3] http://www.aemc.gov.au/Rule-Changes/Non-scheduled-generation-in-central-dispatch

[4] https://www.aer.gov.au/wholesale-markets/enforcement-matters/infringement-notices-issued-to-cs-energy-and-enforceable-undertaking-failure-to-follow-dispatch-instructions-and-offer-obligations

[5] Page 48, Future Power System Security Program, AEMO

Table 5 Summary of potential technical solutions for the identified challenges

Technical solution	Frequency Control (including extreme power system conditions)			System strength
	High RoCoF	Insufficient FCAS	UFLS/OFGS operation (high RoCoF)	
Synchronous condenser with or without flywheels. These can be new or retrofitted to existing/retiring plant.	✓		✓	✓
Synchronous generation/storage Either new entrants or existing plant	✓		✓	✓
Batteries and other inverter-connected **storage** providing ancillary services	✓	✓		Unsure
Wind generation providing ancillary services	✓	✓		Unsure
PV and other inverter-connected generation providing ancillary services	✓	✓		Unsure
Demand management providing broader ancillary services	✓	✓		
Change **protection systems** to operate in weaker systems				✓
Allow frequency to deviate more	Unsure	Unsure	Unsure	
Adjust **RoCoF protection** settings	Unsure		Unsure	
Maintain **local ancillary services** in areas that could island	Partial			
New **AC interconnectors**	Partial	Partial	Partial	
New **HVDC interconnectors**		Partial		

Stanwell notes these identified solutions are a combination of those that could be implemented by new, existing or retiring generators as well as network based solutions. Ideally, if a solution can be implemented by either a generator or a network, then these technologies would compete on an equal basis to ensure the most efficient solution is implemented. This may mean that generators and networks are both allowed to access the same funding and/or markets rather than having separate compensation arrangements as is what currently occurs.

We also note the discussion of inertia at the recent AEMO roadshow. Stanwell supports the establishment of a market to provide this essential service. Importantly, there are synchronous generators in the NEM that are currently being retired but, with the appropriate incentive, could continue to be available as synchronous condensers. It appears as though an inertia market would need to be facilitated outside of the real time market, in a similar manner to AEMO's System Restart Ancillary Services (SRAS) contracting.

Transparency

Stanwell requests all non-confidential submissions to this report be published on the AEMO website.

Thank you for consideration of Stanwell's response to the Future Power System Security Program progress report. If you would like to discuss any aspect of this submission, please contact Jennifer Tarr on 07 3228 4546.

Regards

Luke Van Boeckel
Manager Regulatory Strategy
Energy Trading and Commercial Strategy