



meridian

Meridian Energy Australia Pty Ltd
Level 15, 357 Collins Street
Melbourne VIC 3000

1 August 2017

Ben Hiron
Australian Energy Market Commission
PO Box A2449
Sydney South, New South Wales 1235

Project number: RELO065

Dear Ben

Review of the Frequency Operating Standard

Meridian Energy Australia Pty Ltd and Powershop Australia Pty Ltd (MEA Group) thanks the AEMC for the opportunity to provide comments in relation to its review of the frequency operating standard.

MEA Group is the owner and operator of the Mt Mercer and Mt Millar Wind Farms as well as Powershop Australia, an innovative retailer committed to providing lower prices for customers which recognizes the benefits for customers of a transition to a more renewable based and distributed energy system.

MEA Group recognises the importance of maintaining a stable frequency as a critical element in ensuring that consumers can benefit from a safe, secure and reliable energy system. To this extent, we consider that this review has a critical role to play to ensure that the system is updated to reflect the many changes in configuration of Australia's energy system over the past decade and the many changes likely to occur in the near future.

As a general rule, we consider maintenance of stable frequency to be of such critical importance to reliability that all opportunities to effectively and efficiently maintain frequency stability should be explored. This includes ensuring the system has the right drivers to achieve this such as both economic drivers (e.g. FCAS market) and technical solutions (e.g. utilising distributed self-governing behaviour).

Given the importance of this matter and the various dependencies involved, we also support the two stage approach adopted for this review.

Question	Response
Question 1 - Issues related to the approach and assessment criteria	
(a) What settings in the FOS do stakeholders believe are best defined through a cost benefit trade-off?	Given its importance to underlying system reliability, direct cost benefit trade-offs may not be particularly enlightening. Nonetheless we consider that understanding the balance between burdens imposed and advantages gained must always underlie appropriate decision making.

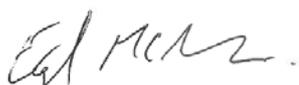
Question	Response
(b) What criteria should be considered in reviewing and determining the settings in the FOS?	<p>We consider that the criteria must include the impact on:</p> <ul style="list-style-type: none"> • reliability; • current and potential future investment; • interaction with other market mechanisms; • flexibility to respond to changing circumstances; and • practicality of delivery.
(c) Do stakeholders agree with the Panel's proposed staging approach including the distribution of issues between stage one and stage two?	Yes
(d) Are there any other review processes currently underway or expected to commence shortly that the Panel should be aware of in relation to the review of the FOS?	<p>As you are aware, there are a range of reviews taking place at both a national and jurisdictional level to address issues of security and reliability of supply. These all have a potential to impact on the review of the FOS.</p>
(e) Are there any other issues, other than those identified in this issues paper or noted for consideration in related work programs that the Panel should be aware of in this review of the FOS?	<p>The Panel should consider in depth the potential impact of the introduction of significant quantities of distributed storage at both a utility and household scale and how the standard can interact with such devices to enhance rather than disrupt the ability to maintain system stability.</p>
Question 2 - Incorporation of protected events into the FOS	
(a) What considerations should be taken into account when defining the FOS that applies for protected events?	<p>The purpose of protected events is to ensure that the system can withstand significant non credible contingencies. In considering the FOS for such events, the Panel should balance cost burdens against both likelihood and significance of such events.</p>
(b) What is the appropriate frequency band(s) and restoration timeframes that should apply for a protected event?	<p>It is difficult to answer this question without fully comprehending the bands to apply in other circumstances. It is likely that the protected event frequency band could be somewhat but not significantly wider than for credible contingencies and potentially with longer restoration times.</p>
(c) Are there any regionally specific issues that should be taken into account when considering the treatment of protected events in the FOS?	<p>It is likely that the differing system make-up in certain regions may require different treatments. For example, the high penetration of hydro in Tasmania and wind in South Australia could require quite different approaches.</p>
Question 3 - Multiple contingency events in the FOS	
(a) Is there a need for the FOS to clarify the expectations in terms of the operation of the power system following a multiple contingency event?	No comment at this stage.

Question	Response
(b) To what extent does the introduction of the category of protected event, and associated FOS requirements, form an alternative to this existing obligation?	No comment at this stage.
(c) Are there any regionally specific issues that should be taken into account when considering any element of the FOS that relates to multiple contingency events?	No comment at this stage.
Question 4 - The treatment of Electrical Islands in the FOS	
(a) What are the basic characteristics of a viable electrical island?	A viable electrical island must contain multiple generation sources with a sufficiently balancing load to ensure the system can remain stable for all expected variations in generation and load.
(b) If a guideline for an electrical island was defined in the FOS, what characteristics would such a guideline describe?	Some simple, sensible measure that would ensure a viable electrical island. This may be a requirement for a certain amount of generators, generation and load.
(c) How do the characteristics of an electrical island for the FOS relate to the characteristics of electrical islands formed by credible or protected events, and to the electrical sub-networks used for SRAS procurement?	The SRAS procurement sub-networks may be a sensible starting point for defining electrical islands for the FOS.
(d) Should a minimum amount of load or generation apply to a viable electrical island? Should other factors also be considered?	It is likely that a minimum amount of load and generation will be required but factors such as the responsiveness of the generation, fuel constraints and variability of both generation and load will also be relevant.
Question 5 - Accumulated time error	
(a) What consequences or costs may arise from the relaxation or removal of the accumulated time error requirement from the FOS for the mainland NEM and for Tasmania?	Accumulated time error is of little value in today's digital world where all consumers have access to accurate time keeping devices.
(b) What cost do stakeholders incur, if any, of maintaining compliance with the current accumulated time error requirement?	There may be some minor costs for consumers who still rely on accumulated time error for time-keeping to seek replacements. As replacement equipment is available at minimal cost this should not be a major concern.
(c) Are there any other comments or concerns that stakeholders wish to raise with the Panel in relation to accumulated time error?	Yes. If the Panel determines not to remove the accumulated time error from the FOS then at a minimum it should broaden the error allowance to minimise the cost of maintaining time accuracy.
Question 6 - Definition of terms in the FOS for Tasmania and for the mainland	
(a) Are there any particular definitions in the FOS for Tasmania and the mainland that stakeholders feel should be standardised?	As a general principle we support standardisation wherever feasible but recognise that frequency keeping in the AC separated Tasmanian island does raise some significant differences.
(b) Are there any reasons why particular definitions of terms in the FOS for Tasmania should be different from	We would prefer the use of standard definitions but the adoption of different bands, timeframes etc. to deal

Question	Response
the same terms in the FOS for the mainland?	with regional differences.
(c) Do stakeholders have any comments on the current definition of a generation event in the FOS for Tasmania and for the mainland, as it relates to AEMO managing unexpected changes in generation output?	The definition being dependent on synchronisation of generation units may be too limiting to reflect actual changes in generation performance in light of newer technologies such as inverter based generation.
(d) Are there any other emerging scenarios or issues that support any changes to the current definitions in the FOS for Tasmania and for the mainland?	As discussed above, the increased penetration of storage and the potential significant expansion of electrical vehicle ownership have the potential to have significant impacts on frequency and the FOS.
(e) Are there any other definitions in the FOS, that stakeholders would like the panel to pay particular attention to in relation to their applicability or consistency?	No comment at this stage.
Question 7 - Issues related to the proposed approach to stage two of the Review	
(a) Generally, do stakeholders consider the approach defined above represents a sensible way to assess the FOS? Are there any additional issues that need to be included in the Panel's assessment?	Yes, we consider the approach defined above represents a sensible way to assess the FOS.
(b) What are the implications for the FOS of changes to the generation mix over the last decade?	The increased penetration of renewable generation and more small scale distributed generation means that controlling frequency must be achieved other than by simply imposing obligations on large generators.
(c) From a generator, network or consumer perspective, have stakeholders directly observed any evidence of poor power system frequency quality impacting their operations or equipment?	We have observed a decline in power frequency and quality but it is difficult to assess or quantify its impact on operations or equipment.
(d) If so, please describe the characteristics of the poor power system frequency quality observed, the impacts on equipment and the costs incurred as a result?	N/A - refer to above comment.
(e) Is the potential approach of defining combinations of changes to the FOS components a sensible way to assess the FOS?	Yes, this approach is likely to be the only means by which a sensible FOS can be achieved given the different system and market impacts in various circumstances.

If you have any further questions please feel free to contact me.

Yours sincerely



Ed McManus
Chief Executive Officer
Meridian Energy Australia Pty Ltd