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PO Box A2449  
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Dear Dominic

### **Generator Technical Performance Standards**

Meridian Energy Australia Pty Ltd and Powershop Australia Pty Ltd (MEA Group) thank the AEMC for the opportunity to provide comments in relation to its review of generator technical performance standards.

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 efforts of the Commission and AEMO to manage the orderly transition to a distributed, low generation mix whilst maintaining and improving where possible the stability and security of the power system to deliver a safe and reliable supply of energy to consumers.

The basis for the rule change request is generally sound and appears complementary to related and currently open reviews by the AEMC and jurisdictional bodies within the NEM. As always MEA Group supports a transparent and consistent approach to the connection of new generators and removes any unnecessary barriers to entry for all participants. Given the broad range of power system fundamentals this rule change request covers, MEA Group encourages the Commission to consult widely and ensure all relevant reviews and associated rule change requests are completed ahead of any final determination so that the right balance is struck between improvements to system security and the costs associated with achieving those improvements.

While MEA Group notes AEMO's contention that the application of the proposed rules to all connection applications where the performance standards have not been finalised is imperative to ensure the ongoing security of the power system, MEA Group cannot support any retrospective application of the proposed rules or the introduction of any retroactive rules. This would introduce unnecessary sovereign risk into the rule making process and MEA Group, while supportive of efforts to improve system security, considers that the proposed rule change is not the only measure available to AEMO to improve system security. On that basis, MEA Group considers the proposed rule change should take effect no sooner than the date on which it is enacted. .

It is also important for the Commission to appreciate that whilst these changes may result in a more secure operating environment, the responsibility for ensuring system security cannot solely be placed on the improvement of the generator technical performance standards. AEMO continues to play the key role in maintaining system stability and ensuring they are appropriately equipped and prepared for a range of operating scenarios may prove to be as effective in achieving the desired outcomes as would the increasingly complex and changing generator technical performance standards.

Question	Response
Question 1 – Assessment framework	
Do you agree with the Commission's proposed approach to assessing whether the rule change request will, or is likely to, contribute to the achievement of the national electricity objective? If not, how should it be assessed?	Fundamentally, the Commission must decide whether the costs associated with the rule change request will lead to commensurate improvements in power system stability. The proposed approach by the Commission seeks to balance these two outcomes given the changing nature of the power system and the significant volume of connection requests currently before AEMO. MEA Group believes the Commission should attempt to quantify and value the future benefits of ancillary services markets and the resulting benefits to consumers as part of this rule change assessment.
Question 2 – Role of access standards	
Do the current generator access standards require changes to help maintain power system security?	Historically the power system has been extremely stable save for a few notable exceptions. MEA Group believes AEMO is the best-placed organisation to determine whether the generator access standards require changes as a result of the changing nature of the power system to ensure the operation of a stable system. MEA Group suggests that changes to the generator access standards are but one of a number of mechanisms available to achieve a more stable power system and that these changes should not be viewed as the “silver bullet” when assessing this rule change request. Alternatives such as a greater interconnectedness between the regions, the use of sophisticated demand management schemes and more robust weather and generation forecasting systems should all be included as mechanisms capable of managing system stability into the future. This will help to drive economic investment in the power system and to determine lowest cost solutions for consumers.
Would making changes to generator access standards represent the lowest cost approach to maintaining system security relative to other options?	This is difficult to assess without the full range of cost-benefit analysis available for alternative solutions. Where the changes can be met by existing or minimal changes to currently available technology then certainly these would likely represent the lowest cost approach to improving AEMO’s ability to manage system security. However, where the changes will require significant improvements or changes to currently available technology, the Commission should ensure there is a degree of flexibility contained in any final determination to ensure that any costs associated with the changes are appropriately offset by commensurate gains in respect of system security. In addition, the Commission should ensure that the proposed rule change is only applicable to new connection agreements.
Will mandating certain capabilities in generator access standards enable and support the establishment of	It is quite likely parts of the proposed rule change will lead to, at a minimum, new entrants into existing ancillary service markets which should result in lower

Question	Response
ancillary services in future?	prices for consumers in the long run. MEA Group continues to be supportive of any initiatives that result in lower prices for consumers without compromising system security or reliability.
Question 3 - Proposed changes to generator access standards	
Do you agree with AEMO's analysis of the issue in relation to the proposed change to the access standard?	AEMO remains the best-placed organisation to undertake an analysis of the power system and to propose the changes it feels are necessary for AEMO to continue to meet its operational obligations in respect of system security. MEA Group suggests that the outcomes from the AER's investigation into the System Black event in September 2016 in South Australia should also be published and understood by the Commission ahead of any final rule determination. MEA Group notes that any changes to federal and state energy policy could impact the assumptions underpinning AEMO's analysis in respect of synchronous and asynchronous generators share of the future power system.
Would the proposed change address the issue raised by AEMO? If not, what alternative solutions are there?	As discussed above, this change is but one mechanism available to AEMO to improve its ability to manage system security. However, these changes need to be considered in light of any associated costs (that would ultimately be borne by consumers) and benefits.
Does the proposed change represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	Given MEA Group is not currently negotiating the connection of a new generator to the power system it is difficult to form an accurate view on this question.
Can you provide an indication of the costs associated with the proposed change?	As discussed above, MEA Group is not currently in a position to provide any details in respect of this question.
Question 4 - System strength access standard	
Do you agree with AEMO's analysis of the issue related to system strength?	MEA Group agrees with the philosophy of utilising a generators full capability to maintain system strength such that costs for future connections are minimised. However this should only be done on the basis that where it is required by AEMO, a cost recovery model is included in the connection agreement allowing that generator to recover any additional costs from future connecting parties.
Would the proposed changes address these issues, particularly in light of the Commission's Managing system fault levels rule change final determination? If not, what alternative solutions are there?	MEA Group is comfortable that the Commission is the best-placed organisation to determine whether the proposed rule change aligns with its final determination on managing power system fault levels.
Would the proposed changes relating to system strength represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	As discussed above MEA Group is not currently negotiating the connection of a generating unit to the power system and therefore cannot comment on whether these changes represent a barrier to entry;

Question	Response
	either technically or economically.
Question 5 - Mandating active power control	
Do you agree with AEMO's analysis of the issue related to active power control?	MEA Group agrees that based on the current transformation of the power system, with the retirement of synchronous generating units and the commissioning of larger asynchronous generators, changes need to be made in order to facilitate the deployment of renewable energy across the NEM. Provided that trend continues, MEA Group agrees with AEMOs analysis of the issue related to active power control.
Would the proposed changes address these issues? If not, what alternative solutions are there?	The proposed changes are likely to provide AEMO greater ability to manage the active power of generators connected to the power system and hence maintain the stability of the network. However, the proposed changes will only yield maximum benefit if the operating philosophy and protocols underpinning the system are also improved.
Would the proposed changes relating to active power control represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	It is difficult to comment on this question without fully understanding the capacity of the various OEMs to comply with this rule change. MEA Group notes the trial currently underway at Hornsdale Stage 2 Wind Farm, the results of which should be understood by AEMO and the Commission prior to a final determination on this proposed rule change.
What are the risks associated with mandating active power control capabilities?	The risk associated with the proposed rule change is that we fail as an industry to address what appears to be the root cause of deteriorating system stability. That is, synchronous generating units are widening their deadbands to the edge of the Normal Frequency Operating Band (NOFB) (which is permitted under the current rules and is in accordance with the FCAS market design that expects contingency response to commence at the boundary of the NOFB). This boundary is wider than any previous deadband allowable when the utilities operated the power system. It is contradictory to the Nation Electricity Objective as it requires more energy to arrest the frequency fall and in some instances is so late that it cannot arrest it, hence under frequency load shedding is used as a final attempt to maintain the power system in a secure and stable state. MEA Group believes this view is supported by the findings of the recently released DigSilent Report entitled <i>Review of Frequency Control Performance in the NEM under Normal Operating Conditions</i> .
What impacts would a mandated active power control capability have on competition in FCAS markets, and therefore FCAS prices?	MEA Group would expect that with a greater number of registered providers in the FCAS market that contingency and regulation prices begin to fall from their current highs. This would be a clear benefit for consumers and an outcome that MEA Group would

Question	Response
	support.
Question 6 - Reduction in system size thresholds	
Do you agree with AEMO's view that standards should not consider generating system size in their application appropriate? If not, what alternatives are there?	MEA Group remains a strong supporter of community energy projects and would be disappointed in any rule change that created a prohibitively high barrier to entry for these projects which will only grow in importance as the power system shifts to a more distributed model over time. That said, where those projects with an installed capacity below 30MW and above 5MW can meet the automatic access standards as described in the proposed rule change without significant cost, MEA Group believes it would be prudent for them to do so.
Would the proposed changes to the thresholds for certain generator access standards represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	As discussed previously, without undertaking a connection application under the currently proposed rule changes MEA Group is not in a position to comment.
Can you provide an indication of the costs associated with the proposed changes?	Not applicable.
Question 7 - Definition of continuous uninterrupted operation	
Do you think the current definition of continuous uninterrupted operation raises issues for maintaining power system security?	Given the technical requirements for generators have not been reviewed for 10 years it is timely that AEMO and the Commission do so now. There are a number of registered generator performance standards which interpret this clause differently and a more concise approach would likely result in AEMO's improved ability to maintain a secure power system. However, MEA Group generally does not support any changes that are applied retrospectively to existing generators.
Would the proposed change to the definition of continuous uninterrupted operation address the issues raised by AEMO? If not, what alternatives are there, for example, what materiality thresholds should apply?	Noting the above, AEMO and the Commission must remain cognisant of those existing generators or technologies for which meeting the requirements of the rule change would represent a prohibitive economical and technical barrier.
Would the proposed change to the definition of continuous uninterrupted operation represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	MEA Group does not expect that this change would represent a barrier to entry for future generators.
Question 8 - Negotiated access standard requirements under specific clauses	
Do you agree with AEMO's analysis of the issues in relation to negotiated access standard requirements?	MEA Group supports the flexibility available under the current regime. Retaining this flexibility means these obligations can continue to be met economically.
Would the proposed changes address the issues raised by AEMO? If not, what alternatives are there?	The proposed changes will make clear the obligations that AEMO expects a generator to meet when

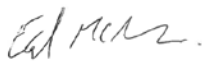
Question	Response
	connecting to the power system. The quid pro quo is that many generators would be operating near their theoretical technical limits which provide little flexibility in their operation.
Would the proposed changes represent an unnecessary barrier to entry, having regard to the costs imposed by the change and the technical capabilities of different technologies?	As noted previously, without undertaking a connection application under the proposed rule change scenario it would be difficult for MEA Group to comment on this question.
Question 9 - Technical standards relevant to the alteration of generating plant/system	
Do you agree with AEMO's analysis of the issues related to the technical standards for alteration of generating plants or system?	MEA Group is not fully convinced that the proposed amendments to the technical standards for a generator proposing to alter its generating plant or system will contribute significantly to improvements in system stability.
Would the proposed change address the issues identified by AEMO? If not, what alternatives are there?	An alternative would be to require a generator altering its generating plant or system to negotiate in good faith with the relevant TNSP and AEMO to identify technical improvements that enhance AEMO's ability to operate the power system in a more secure state.
Would the proposed changes to standards relevant to the alteration of generating systems or plant represent an unnecessary barrier to investment, having regard to the costs imposed by the change and the technical capabilities of different technologies?	MEA Group suggests that it is possible this rule change could inadvertently trigger prohibitively costly technical improvements which could result in only marginal benefits to system security whilst driving an increase in the overall cost to the consumer. MEA Group reminds the Commission that this rule change is but one of a number of mechanisms available to AEMO to improve the stability of the power system going forward.
Question 10 - Jurisdictional issues and harmonisation	
How important is a consistent approach to generator access standards across regions?	A consistent approach to generator access standards across the NEM is important and is strongly supported by MEA Group.
Are AEMO's proposed changes sufficient to manage system security across all areas of the power system so that jurisdictional arrangements (such as ESCOSA's licensing conditions for connecting generators in South Australia) are not required?	Subject to the final outcome of the commission's review and determination we think AEMO's proposed changes are sufficient. As noted above whatever the outcome of the rule change request, a consistent approach across all NEM jurisdictions is important for the industry.
Are there changes in addition to those proposed by AEMO that stakeholders consider necessary to avoid the need for jurisdictional specific arrangements?	None that the MEA Group is aware of.
Question 11 - Issues with the current negotiating framework	
Do AEMO and NSPs have adequate powers under the NER to require connection applicants to set performance standards at levels that do not negatively impact power system security? Are there other factors that may impact the effectiveness of the negotiating	MEA Group has been involved in the negotiation of new connection agreements in a number of different capacities over the past 6 years. MEA Group's observation would be that AEMO and the NSP's have sufficient powers to require connection applicants to set performance standards at levels that do not

Question	Response
process?	negatively impact power system security.
How does the negotiating process operate in practice for participants? Is AEMO's view that connection applicants generally aim for the minimum access standards, and negotiate away from that position, an accurate representation of most negotiations?	MEA Group cannot comment on behalf of other participants however that is not MEA Group's approach to the negotiation of connection standards. MEA Group recognises the value in identifying win/win outcomes for both parties and consumers and in this context always seeks to minimise the time and costs associated with these negotiations.
What are the costs of the current negotiating framework for market participants and AEMO?	MEA Group notes that the resources required to complete these negotiations have at times been over and above what it would reasonably expect for this type of negotiation.
Question 12 - Rationale for a negotiating framework	
Given the changing nature of connections to the power system, does the rationale for a negotiating framework governing the connection process remain appropriate? Do you value the ability to negotiate and why?	The rationale for the framework remains sound. It continues to be an important aspect of the connection process as it allows both parties to identify where any risks or opportunities lie and the party best suited to manage them.
What are the appropriate respective roles of the automatic, minimum and negotiated access standards?	These roles should remain as they have always been. This will only become more relevant as the makeup of the power system becomes more complex and more distributed.
Question 13 - AEMO's proposed changes to the negotiating framework	
AEMO proposes changing the negotiations so that the onus is on the connection applicant to prove that they cannot practicably meet an automatic access standard. Does this change strike the appropriate balance between security and costs?	MEA Group has some reservations about moving to this type of framework. As discussed earlier, by lifting the automatic access standards there is effectively less flexibility for an operator to operate its plant. By then placing the onus on the applicant to prove that they cannot practicably meet an automatic access standard, this could potentially result in less than optimal outcomes for generators and the power system.
Would the proposed changes present unnecessary barriers to entry for particular technologies, scales or locations?	It is possible these changes could lead to higher costs associated with the connection of new generators to the power system.
Would the proposed changes have any unintended adverse consequences for connecting MNSPs or large customers?	MEA Group is not in a position to provide a response to this question.
Question 14 - Nature of the issues raised	
What are the potential negative impacts on system security that could arise from the connection of new equipment under existing arrangements?	It's important to note that the current set of rules have generally ensured the power system can be operated by AEMO in a secure and stable state. For this reason, it would be prudent for the Commission to consider all stakeholders views prior to making a final determination and then setting a date for implementation of the rule

Question	Response
	change in whatever form it ultimately takes.
<p>What other options may be available to address the issues raised, taking into account the limitations set out in section 6.2.1 below?</p>	<p>There may be opportunities for AEMO and the NSP to engage on a case by case basis with projects yet to reach financial close or to have made firm procurement commitments to negotiate access standards in line with the proposed rule changes. However, as set out above, MEA Group generally does not support the amending rule applying to all connection applications where the performance standards were not finalised by 11 August 2017.</p>
<p>Question 15 - AEMO's proposed transitional arrangements</p>	
<p>What is the nature of the system security implications of an immediate transition to a new rule, as against a grandfathered transition?</p>	<p>AEMO and the Commission are best placed to assess these implications however connecting a generator to the system on what may soon become antiquated access standards, particularly for future connections under the new regime, is more likely to be characterised as an opportunity cost.</p>
<p>What is the nature of the cost implications of an immediate transition to a new rule, as against a grandfathered transition, and could this vary for different technology types, or depending on the stage a project has reached?</p>	<p>MEA Group is not in a position to provide comment on this question.</p>

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

Yours sincerely



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