

22 May 2019

John Pierce  
Chair  
Australian Energy Market Commission  
Level 6, 201 Elizabeth Street  
SYDNEY NSW 2000

Contact: [katy.brady@aemc.gov.au](mailto:katy.brady@aemc.gov.au)

Dear John,

**Re: Investigation into intervention mechanisms and system strength in the NEM (EPR0070)**

We appreciate the opportunity to provide a submission on the AEMC's consultation paper on the *Investigation into intervention mechanisms and system strength in the NEM*.

We support further investigation into the regulatory frameworks that govern the use of interventions in the National Electricity Market (NEM) and consideration of rule changes that seek to improve administrative processes related to compensation and settlement following directions issued by the Australian Energy Market Operator (AEMO) to maintain minimum levels of system strength or inertia in South Australia.

South Australia has abundant, high quality renewable energy resources and has seen an unprecedented uptake of renewable generation over the last decade. This uptake of increasing levels of asynchronous renewable generation has led to the progressive displacement of synchronous generation creating power system security challenges that need to be managed.

Chapter 7 of the AEMC's consultation paper summarises the process by which AEMO declared and ElectraNet committed and took action to address fault level and inertia shortfalls in South Australia under the new system strength and inertia frameworks.

This includes the findings of our Economic Evaluation Report<sup>1</sup>, which identified the installation of high inertia synchronous condensers as the most efficient and least cost option to address both the fault level shortfall and synchronous component of the inertia shortfall.

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<sup>1</sup> ElectraNet, [Addressing the system strength gap in SA: Economic evaluation report](#), February 2019.

Chapter 7 also discusses additional matters related to the “do no harm” obligation placed on new connecting generators that was introduced with the new system strength framework and providing system strength and inertia beyond minimum levels to alleviate constraints on non-synchronous generation and realise economic benefits.

While we note that the AEMC does not intend to focus on these additional matters as part of its review, which are to be considered as part of a future work program, we offer the following observations in the interim:

- System strength in South Australia is directly linked to a regional constraint currently applied by AEMO to limit the aggregate level of non-synchronous semi-scheduled generation output in South Australia unless a minimum level of synchronous generation is dispatched – ElectraNet currently performs Full Impact Assessments (FIAs) on new generator connections that take this constraint into account; and
- The effect of “do no harm” provisions in FIAs should be further clarified to support more transparent assessment of both system level impact and compliance with individual generator performance standards (GPS).

In relation to the current review, we have focused on issues raised in Chapter 7 of the consultation paper, and specifically the practical application of the new frameworks for system strength and inertia. Our insights based on our recent experience are shared in Appendix A and address the relevant aspects of questions 13-16 of the consultation paper.

We look forward to further engagement with the AEMC on these matters, including those that will be considered in its future work program.

Please direct any queries in relation to this submission to Simon Appleby in the first instance on (08) 8404 7324.

Yours sincerely



Rainer Korte  
**Group Executive Asset Management**

**RESPONSE TO CONSULTATION PAPER QUESTIONS 13-16**

| QUESTION 13: APPROACH TO SETTING SYSTEM STRENGTH REQUIREMENTS AND IDENTIFYING SHORTFALLS  |  |
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| <p>1. Do stakeholders have any views about the approach adopted to date by AEMO to determine system strength requirements and identify potential shortfalls?</p>  | <p>The process by which AEMO determines fault level and inertia shortfalls, including the methodology and criteria applied, would benefit from greater transparency and consultation. Given the limited time that was available to AEMO to publish its <i>System Strength Requirements Methodology</i> and <i>Inertia Requirements Methodology</i><sup>2</sup> prior to introduction of the new system strength and inertia frameworks, the preparation of these documents was exempt from consultation requirements in accordance with the Rules consultation procedures.</p> <p>The sharing of details of AEMO's technical assessment, such as study inputs, assessment criteria and outputs, would assist TNSPs in undertaking their own independent assessments. This would also assist in ensuring consistent application of the methodologies in different regions.</p>  |
| <p>2. Do stakeholders have any suggestions as to what, if any, changes to the current methodology warrant consideration?</p>  | <p>AEMO's methodologies should require a forward-looking assessment of the power system of at least 5 years, noting that network solutions such as synchronous condensers have asset lives of around 30 years. We note AEMO intends to update its <i>System Strength Requirements Methodology</i> in late 2019 or early 2020 in order to adopt a more forward-looking approach, consistent with the requirements of clause 5.20.2(c)(14) of the Rules.</p>   |
| <p>3. How should AEMO identify shortfalls up to five years ahead, and what does this mean for the level of specificity than can be achieved as to what measures are required in response to the shortfall? For example, would there be merit in considering a staged approach whereby a preliminary notice is used to identify a projected shortfall in a timely way, followed by more detailed analysis as to the required response?</p> | <p>A staged approach should be considered whereby a preliminary assessment is conducted with a longer term view, followed by a more detailed approach that is used to refine the requirements.</p> <p>Information on proposed, committed and forecast generation projects within a region from sources such as AEMO's Integrated System Plan and Electricity Statement of Opportunities should be applied to forecast the likely impacts on synchronous generation dispatch and the resulting impact on both system strength and inertia.</p> <p>This analysis should also consider regional demand and be conducted for, at a minimum, the summer, winter and spring/autumn periods over the next five years. A more detailed short-term assessment could then be conducted to consider, ideally, the next three years.</p> <p>Importantly, where the construction of new assets is determined to be the least cost option, minimum lead times on key plant items that drive project delivery timeframes, and which are further extended by option analysis, design, procurement and construction time, should be taken into consideration.</p> |

<sup>2</sup> AEMO, [Inertia requirements methodology: inertia requirements and shortfalls](#), June 2018.

| QUESTION 14: INTERACTION BETWEEN SHORT AND LONG TERM SOLUTIONS  |   |
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| <p>1. Do stakeholders have views on the interaction between the minimum system strength framework and the current arrangements of issuing directions?</p> | <p>The regular issue of directions results in changes to generation dispatch patterns over time (due to low wholesale market prices coinciding with times of low system strength when compared to compensation amounts payable as a result of directions). These impacts are acknowledged within the AEMC’s consultation paper (section 7.4.2), wherein generators that withdraw from the market and await direction are referred to as “direction dependent”.</p> <p>A change in generator behaviour may lead to an increased requirement for directions, which further impacts the minimum strength requirements of a region.</p> |

| QUESTION 15: DECLARING SHORTFALLS THAT VARY OVER TIME   |  |
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| <p>1. Do stakeholders see any risks or benefits in AEMO declaring a shortfall that varies in magnitude over the year?</p> | <p>This approach is expected to improve contracting arrangements which are likely to offer the most flexible option.</p> <p>However, the viability of these contracts will depend on both sufficient competition during the negotiation of the contracts and the long term viability of generators given other commercial pressures.</p> |

| QUESTION 16: TNSP MEETING THE SHORTFALL   |   |
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| <p>Do stakeholders have feedback on potential changes that could be made to the minimum system strength framework in order to make it simpler or more cost-effective for the TNSP to address a system strength shortfall?</p> | <p>Meeting shortfall requirements via contracting should require consideration of contracts that have a sufficiently long term to allow alternative options to be implemented if contracts are not to be renewed.</p> <p>Requirements should be determined based on studies over a long enough forecast period to ensure that a robust minimum requirement is specified; i.e. the minimum requirement and potential solutions would not change materially if the forecast period was changed incrementally.</p> |