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Friday, 31 March 2023

Ms Anna Collyer
Chair
Australian Energy Market Commission
Level 15,60 Castlereagh Street
SYDNEY NSW 2000

Dear Ms Collyer

Submission to AEMC's Efficient Provision of Inertia consultation paper

Transgrid welcomes the opportunity to provide feedback on the Australian Energy Market Commission's (**AEMC**) consultation paper on the Efficient Provision of Inertia.

As the jurisdictional planner, operator and manager of the transmission network in NSW and the ACT, Transgrid supports reforms that enable energy and system security services to be provided to consumers at the lowest efficient cost. To achieve this aim and remain consistent with the National Electricity Objective, any amendments to the National Electricity Rules (**Rules**) need to be considered with other frameworks that are in place or are currently being reviewed to ensure whole-of-system costs are kept to a minimum.

Given this, Transgrid does not support the introduction of an inertia spot market. We believe that an inertia spot market would provide unnecessary duplication of mechanisms that are already being planned to support the real-time delivery of system security services (via the Operational Security Mechanism (**OSM**)). We expect that this duplication is likely to increase costs to consumers, because consumers would be paying for the same service multiple times.

Given inertia and system strength are not independent of each other, our preliminary view is that the most efficient way to address declining system inertia is replicating the system strength framework. That is, a Transmission Network Service Provider (**TNSP**) is responsible for the provision of minimum inertia levels in the planning timeframe, whilst the OSM ensures sufficient levels of inertia are maintained in the operational timeframes. Our views are further outlined in the attached submission.

Transgrid looks forward to continuing to work with the AEMC to develop an inertia framework that results in efficient outcomes for consumers by maximising the use of infrastructure used for other system security services. If you or your staff require any further information or clarification on this submission, please contact Zainab Dirani at Zainab.dirani@transgrid.com.au.

Yours sincerely

Maryanne Graham
Executive General Manager of Corporate and Stakeholder Affairs

Efficient provision of inertia

Transgrid submission to the AEMC's consultation paper

Summary

Transgrid welcomes the Australian Energy Market Commission's (**AEMC**) consultation and supports reforms which promote efficiency in providing essential system service that maintains a secure power system at a minimal cost to consumers.

Inertia, which has historically been provided by thermal synchronous generating units such as coal and gas, is expected to decline as renewable energy share of dispatched energy increase. The current planning arrangements places the responsibility for identifying inertia shortfalls with AEMO, and rectifying inertia shortfalls with the Transmission Network Service Provider (**TNSP**). South Australia and Tasmania are the only States experiencing inertia shortfalls currently, while Queensland and Victoria are expected to experience shortfalls from July 2026. Although no inertia shortfalls have been declared in NSW due to the non-credible risk of islanding, inertia is projected to decline significantly in NSW in the coming decade below the NSW minimum inertia levels, as coal generators retire.

In 2021, the AEMC introduced new measures to ensure there are efficient levels of system strength in the NEM to prevent adverse system strength impacts. The final rule on the Efficient Management of System Strength on the Power System requires the System Strength Service Providers (**SSSP**), which are the jurisdictional planning bodies in each state, to meet the minimum and efficient levels of system strength requirement. In doing so, TNSPs will assess both non-network and network options through a Regulatory Investment Test -Transmission (**RIT-T**). Given inertia and system strength are not independent of each other, most of the current solutions outlined in the system strength RIT-T's, such as synchronous condensers fitted with flywheels and grid forming batteries, can be co-optimised to also provide inertia requirements.

Given this, Transgrid does not support an inertia spot market. We believe a similar structure to what is being implemented for system strength would be appropriate for inertia, namely that each TNSP is responsible for the provision of minimum inertia levels in the planning timeframe, whilst the Operational Security Mechanism (**OSM**) ensures sufficient levels of inertia is maintained in the operational timeframes. This is because:

- Many of the solutions that can be implemented for system strength can also provide significant benefit for inertia at no or minimal additional costs. Therefore, co-optimising network and/or non-network solutions to meet inertia and system strength needs will lower the total cost to consumers of managing power system security issues. In the planning horizon, this will be best achieved by TNSPs and in the operational horizon, best achieved through a co-optimisation with other system security services in the OSM.
- Incentivising new solutions into the market to provide inertia (such as synchronous condensers with flywheels or grid forming batteries) may require long term contracts to have sufficient revenue certainty, which would be possible through structured procurement by TNSPs.

Transgrid also supports a streamlined RIT-T process to facilitate a shorter timeframe between identifying an inertia shortfall (and other system security services) and the delivery of the solution. We understand the regulatory assessment framework is being considered in the Transmission Planning and Investment Review (**TPIR**), so we welcome any changes that creates a more efficient process to address shortfalls in system security services.

Transgrid views on specific questions identified in the AEMC consultation paper

AEMC Questions	Transgrid response
Technical Information on inertia	
Do stakeholders consider there is any additional technical information required to assess the challenges and long-term system requirements related to inertia beyond what AEMO is doing?	We do not consider there to be any additional technical information required.
Do stakeholders have their own technical information or studies that can be shared to help answer these questions?	Yes. Transgrid undertook analysis on what network infrastructure would be required to operate the power system securely at up to 100% renewable energy. When appropriately co-optimising solutions for inertia and system strength, many future inertia gaps could be closed at no or low additional cost when addressing system strength gaps.
Inertia procurement and allocation in real-time	
What are stakeholders' views on the merits (or not) of defining and procuring inertia requirements dynamically in operational timeframes, as opposed to the current approach (that is, annual assessments that inform longer-term inertia procurement to specified minimum levels)?	Given the large overlap between solutions for system strength and inertia such as synchronous condensers, it would be efficient and economical for both responsibilities to remain with TNSPs to enable effective co-optimisation between solutions in the planning time horizon. With the planned introduction of the OSM which should already account for inertia requirements, Transgrid's view is that an additional inertia spot market would introduce duplication and inefficiencies.
Investment signals for inertia	
What are stakeholders' views on the adequacy of the current inertia framework in providing long-term investment signals and the need for reform?	The current framework has been sufficient to meeting inertia shortfalls to date, however it is a reactive framework which relies on AEMO identifying an inertia gap within 5 years for TNSPs to rectify. We believe a more proactive and cost-efficient approach would be to allow TNSPs to co-optimise solutions to meet inertia and system strength requirements on a planning timeframe.
Will the AEC's proposed solution best address the problems raised	
What are stakeholders' views on the AEC's proposed solution? Is it the best solution to improve the: • efficiency of inertia provision in the operational timeframe? • efficiency of inertia provision in the investment timeframe?	We do not agree with an inertia spot market. Even though an inertia sport market may meet inertia shortfalls it may add unnecessary costs to consumers given implementation costs and the inability to optimise solutions for multiple network needs.
Alternative options	
Do stakeholders consider that any of these options address the problems identified (see Chapter 3)	As outlined in our submission, we believe the structured procurement option is the most efficient,

AEMC Questions	Transgrid response
more effectively than the proposed solution of an inertia spot market?	least cost option outlined in the consultation paper. That is - a similar framework to the one implemented under the system strength framework
Are there any additional options not identified in this consultation paper that should be investigated?	No, we do not believe so.
Implementation considerations	
What are stakeholders' views on the implementation considerations identified?	No comment
Do you agree with the proposed assessment framework? Are there additional principles that the Commission should take into account or principles included here that are not relevant?	No comment