31 March 2023

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Submitted by email to aemc@aemc.gov.au

Project number: ERC0339

Efficient provision of inertia - Consultation paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised from the Australian Energy Market Commission (the Commission) on the Efficient provision of inertia Consultation paper.

The need for inertia is critical to the NEM as the generation mix continues to change and with declining inertia posing a future threat to power system security. Inertia has historically been provided by synchronous generators, such as coal, gas, and hydro, however with the retirement of thermal generation and increase in inverter-based generating systems we will see a reduction in inertia. The deteriorating reliability of the coal fleet and the recent energy crisis in the NEM has exposed the need for appropriate revenue sources to sustain increased levels of investment to improve the security and reliability of supply.

It is for this reason that Snowy Hydro supports the need for an inertia market to ensure that the current NEM energy-only design delivers ongoing security and reliability of supply as the energy transition continues. The inertia market will provide the revenue stream for generators capable of supplying inertia required to ensure that the NEM delivers ongoing security and reliability of suppl.

An inertia market is an immediate critical reform to deliver ongoing security and reliability of supply. Snowy Hydro therefore submits the following on the key items that the Commission is consulting on:

- There is a need for further technical work to be undertaken by the Australian Energy Market Operator (AEMO) to better understand the long-term needs of the power system and inform the development of an updated approach for inertia.
    - AEMO needs to understand what the risk looks like of declining inertia and what the NEM would look like without inertia. AEMO should test all scenarios.
    - As part of its Engineering Framework, AEMO should continue progressing several pieces of technical work that will be useful to inform this process.
    - While AEMO should be given enough time to develop a better technical understanding of inertia this should not be at the expense of an inertia market being delayed further.
- A detailed economic perspective should be provided on an inertia market. This should be undertaken by the Commission with a clear understanding that inertia is global, it's not localised, and therefore there is a strong rationale for a spot market.
    - The economics of an inertia market should not be left with the market operator to decide on behalf of the market. There should be a clear cost benefit analysis undertaken by an independent consultant.
    - Clearer investment signals are needed to meet long-term inertia needs. Valuing inertia and providing transparency on inertia needs could incentivise efficient investment and promote innovation.
- The mechanisms for structured procurement should not be considered an alternative mechanism to a market approach.
    - The Operational security mechanism (OSM) does not form part of the critical path to creating markets for system services, it is primarily a scheduling mechanism designed to address AEMO's lack of confidence in the current dispatch process.

    - While the OSM is considered as an alternative to a market by the Commission, it is not. Instead it increases the risk of OSM not unbundling services to provide an inertia market.
- The implementation timeframe for a market should be decided by the Commission so as to leave time for AEMO to then implement a market should more thermal generators come offline earlier than expected. Any delays to a market risks deterring investment and putting the NEM at risk.

Technical input to this rule change

Snowy Hydro supports further technical work being undertaken to understand the long-term needs of the power system and inform the development of an updated approach for inertia. The Commission has correctly demonstrated the key questions AEMO will need to answer to inform the rule change process. These include:

- *"defining system inertia needs, including:*
    - *the level of inertia that will be required for secure system operation in the interconnected NEM during normal operation;*
    - *considering whether the future system needs should be defined in terms of RoCoF requirements instead of inertia levels;*
- *defining the relationship between rotational inertia and other technologies: assessing how other technologies (e.g. synthetic inertia) can contribute to meeting the current and future system needs, and the relationship of these with rotational inertia."*

As part of the technical input, AEMO should be required to provide scenario planning through a transparent framework using existing reports or undertaking reports, such as AEMO's Engineering Framework. It is critical that AEMO scenario planning provide a forward looking signal and allow participants to understand how markets will evolve. Investors need signals and the services that need to be unbundled. For example, AEMO should understand what the risk looks like of declining inertia and what the NEM would look like without inertia through different scenarios.

When proposing further technical input to this rule change, the Commission should bear in mind the key objective, which is to *"establish arrangements to optimise the reliable, secure and safe provision of energy in the NEM, such that it is provided at efficient cost to consumers over the long-term, where 'efficient cost' implies the arrangements must promote".*[1] This can only be achieved by driving investment in the long-term through markets, which requires unbundling inertia.

It is therefore unclear what the Commission is referring to in regards to "*determining interactions with other security services*" and "*investigating technical interactions between inertia and other synchronous services, such as system strength and FFR, to assess the feasibility of unbundling inertia".* While it is important to understand how different services interact, If market mechanisms are not adopted then the right investment will not be in place in the future for the NEM. There is a misguided belief that markets can be formed just in time to achieve the investment required. This is not the case and AEMO should not rely on existing assets to achieve short term fixes and provide short term certainty of supplies. Rather, the focus should be on creating incentives to ensure an appropriate level of inertia is provided by the market in the future.

Should the Commission need to understand the need for unbundling services and forming a market this should be done by a consultant and not the marker operator. This is not a technical input but rather an economic input to recognise that the system strength incentive framework will address the historical constraints. The Australian Energy Council (AEC) inertia rule change request should continue to progress to minimise the need for reforms by AEMO's Operational security mechanism (OSM) that could instead be used for non-unbundled services.

[1] AEMC, Operational security mechanism, Draft rule determination, 21 September 2022, pp10

Clearer investment signals are needed to meet long-term inertia needs

Snowy Hydro agrees with the AEC's rule change request that considers that there is a lack of investment signals for potential inertia service providers and for those who may invest in inertia R&D and technology. It's critical that valuing inertia and providing transparency on inertia requirements would incentivise efficient investment.

Snowy Hydro welcomes ongoing technical research on an inertia spot market and analysis to ensure that the needs of the power system are provided to support a secure system. The main issue now is that the current categorisations of the services are not always fit for purpose, particularly in potential islanding areas where there can be large amounts of variable renewable energy (VRE) generation and low inertia. "*Recently AEMO's 2022 Inertia Report has forecast two new inertia shortfalls in Queensland (ranging from 8,200 MWs to 10,352 MWs) and Victoria (from 2,421 MWs to 2,482 MWs) against the secure operating level from 1 July 2026 onwards. These new shortfalls are in addition to the existing shortfalls declared in 2021 for South Australia and Tasmania.*"[2] This will continue to worsen in the future across all states.

The Energy Security Board (ESB) also correctly supported a spot market approach for valuing and procuring inertia. The effectiveness of an inertia market will depend on its ability to provide adequate incentives for the provision of the service. Snowy Hydro understands the difficulty in integrating an inertia price within the energy market price, however we believe further assessment can be undertaken in an inertia spot market like the FCAS market, where generators and synchronous condensers are co-optimised. We support the AEC proposed design which follows the form of other ancillary service spot markets in the NEM, particularly FCAS markets

As stated above, if market mechanisms are not adopted then the right investment will not be in place in the future for the NEM. A just in time approach to creating markets is not realistic and should not be pursued. Similarly, AEMO should not simply assume that the existing stock of generation assets will be able to deliver adequate inertia without the creation of appropriate, market-based incentives. It is for this reason Snowy Hydro is concerned by the alternative options put forward by the Commission.

Alternative Options

The mechanisms for structured procurement should not be considered an alternative mechanism to a market approach. As noted in Snowy Hydro's response to the Operational security mechanism (OSM), the OSM is attempting to define, value, procure and schedule security services in the NEM but the design proposed by the Commission does not form part of the critical path to creating markets for system services. The intent of valuing system system services from markets is to drive investment, not the need for a scheduling mechanism designed to address AEMO's lack of confidence in the current dispatch process.

The OSM is expected to serve the purpose of unbundling the Essential System Services (ESS) by defining and unbundling these services so as they can be individually priced. The Commission's intent for a long-term goal to value services through markets should not be muddled with the OSM being put in place leading to less interest in developing unbundled ESS markets.

This concern links with the alternative proposal to provide an ahead real-time market. The OSM proposal, which has evolved over the past year, bears many similarities with earlier attempts to introduce an ahead market. Inertia does not warrant a day-ahead market or any further aheadness. The ESB under the Post 2025 Market Design consultation correctly noted that interventions highlight the need to focus on the lack of a market or other structured procurement mechanisms for some ESS, and not be side-tracked by ahead mechanisms. The need for structured procurement of inertia does not imply a need for OSM; or a longer term ahead market.

[2] AEMC, Efficient provision of inertia - Consultation paper, Consultation paper, 2 March 2023

While Snowy Hydro supports reforms to value system services, we are concerned that the Commission has unnecessarily used OSM as being characterised as part of and justified by the need for those reforms. As such OSM should be assessed separately, with any crossover with the Commission's work on system services being addressed on an as-needs basis.

Implementation

Snowy Hydro understands that the implementation of a market for inertia is likely to incur some costs. It is for this reason that the costs must be assessed against the benefits of implementing the solution by an independent consultant. The Commission should not prefer the implementation of a relatively simpler and less costly proposal such as an ahead market for inertia without understanding whether it would provide the appropriate investment signals for investment in inertia. A cost benefit analysis is required.

Any implementation timeframe for a market should not be formed just in time to achieve the investment required. That is any proposal if implemented in 2030 or later will not allow enough time to the market to invest. We support any proposed solution to be implemented prior to 2028 at the latest.

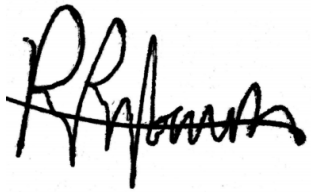
This requires transparency in the process and guidelines and linkages with other reforms. The market would benefit from clear target dates for AEMO to provide transparency of future needs.

About Snowy Hydro

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market ('NEM') and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5,500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy.

Snowy Hydro appreciates the opportunity to respond to the Consultation Paper from the Australian Energy Market Commission (the Commission) on the Efficient provision of inertia Consultation paper. Any questions about this submission should be addressed to panos.priftakis@snowyhydro.com.au.

Yours sincerely,



Panos Priftakis
Head of Wholesale Regulation
Snowy Hydro