

Department for Energy and Mining
Level 4, 11 Waymouth Street
Adelaide SA 5000

Via online portal

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Firm Energy Reliability Mechanism Consultation

Vast welcomes the opportunity to provide the SA Department for Energy and Mining (DEM) with a response to the Firm Energy Reliability Mechanism (FERM) Consultation Paper.

About Vast

Vast is an Australian company that has developed world leading Concentrated Solar Power (CSP) technology. Vast's CSP is ideally suited to Australian conditions, providing numerous advantages over other technologies in delivering dispatchable, renewable electricity generation capacity.

Vast has demonstrated the first operational CSP plant in Australia, in the form of a 1.1MW demonstration project in Forbes, NSW. This project demonstrated the efficiency and flexibility of Vast's modular CSP design, and generated clean, dispatchable electricity for homes and businesses. This project allowed Vast to further improve the CSP plant design, and Vast is now developing a 30 MW CSP plant with 8h+ of storage near Port Augusta, SA.

Renewable heat and power from CSP, with its inherent energy storage, is suitable for a range of use cases. CSP uses arrays of mirrors (heliostats) to concentrate energy from the sun onto a receiver, where it is captured and then stored as heat in molten salt tanks. The heat can then be used to run a steam turbine generator night and day to provide dispatchable inertial capacity – a storage capability like pumped hydro for the desert. Heat can also be used directly for industrial processes, such as sustainable fuels production for shipping and aviation.

Proposed policy framework to support long duration firm capacity

Vast agrees that increasing dispatchable capacity is critical to solving future challenges in the SA network. Investment incentives are required to further develop available firm capacity in SA, and enabling certainty of supply should be a core objective/principle of the FERM. The most cost-effective and resilient energy system is one that comprises a diversified portfolio of renewable generation and storage technologies, both to mitigate reliability risks and enable system security.

We note that one of the core objectives of the scheme is to “incentivise investment in long duration firm capacity at the lowest cost to consumers and *within emission reduction targets.*” We strongly

recommend this link to emission objectives be reflected in the design of the scheme, taking into account other existing energy and climate policies. The policy framework should value a mix of technologies, including renewable inertial capacity, to ensure the reliability of energy supply and progress towards SA's renewable energy objectives.

Scheme design overview

Vast considers revenue certainty and the level of required capacity availability to be the most important factors to meet the Scheme's objectives. Revenue certainty is essential for project investment, especially for renewable long duration firm capacity (e.g. CSP, BESS, pumped hydro). Separate mechanisms to support new and existing capacity is important for incentivising the construction of new capacity – long-term contracts for new generation should encourage investment by providing financial certainty over the project lifetime.

Vast expects that the proposed eligibility criteria will allow the scheme to meet its objectives. However, we recommend the requirements for continuous dispatch be defined to accommodate renewable technologies. For example, renewable dispatchable capacity requires time to 'recharge', and will be negatively affected by strict requirements in the case of back-to-back long duration events. Failure to consider this in the eligibility criteria may result in some technology types being unnecessarily excluded from the scheme, reducing the overall resilience of the system.

Finding the right balance of capacity availability is essential for the success of the scheme. Too little available capacity will result in a failure to ensure system security during reliability events, while a requirement that is too high will result in unnecessary expense, resulting in a lack of investment and/or high costs to end users.

Scheme operation

Vast understands the need for performance obligations, however we are concerned with using Forecast Lack of Reserve (LOR) events as the primary contract performance obligation.

Forcing projects to maintain large amounts of capacity in reserve for a possible *Forecast LOR 2/3* event will significantly increase capital costs (to add sufficient storage) and/or prevent them from participating in the market during non-LOR events so that they can ensure capacity is available. Noting that there is a weak correlation between forecasted and actual LOR conditions (in SA and the NEM more broadly), this may not be aligned with the policy objectives.

More generally, some potentially eligible technologies may find it challenging to meet repeated long duration dispatch obligations over consecutive days. We recommend this be considered under the performance obligations to ensure these technologies are not ruled out from participating in the scheme. We are concerned that inappropriate requirements will result in poor participation in the scheme, in terms of the mix or quantum of capacity (or both).

We encourage the scheme to explore other types of performance obligations that ensure flexible market participation for a range of technology types. For example, financial penalties based on

compliance for LOR events that materialise could be incorporated into the payment phase to give operators flexibility on meeting LOR events while ensuring overall system stability.

Key feedback

Vast agrees that providing revenue certainty for future projects is important for supporting the long duration firm capacity to meet the needs of the SA network. We welcome support for long duration firm capacity, however availability requirements should consider the capabilities of various renewable technologies to avoid an over-reliance on a particular generation and/or storage type. Vast believes that a mix of technologies should be encouraged as part of the framework, including renewable inertial capacity, especially for long-term investment to mitigate tail-risks.

Vast welcomes any opportunities for further discussion with the Department. Please contact [REDACTED] in the first instance.

Kind regards

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