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NSW Climate and Energy Action Group
Department of Climate Change, Energy, the Environment and Water
Locked Bag 5022
60 Castlereagh Street
Parramatta NSW 2124

lds.review@dpie.nsw.gov.au

18 June 2024

Dear Climate Energy and Action Group,

Firm Power Pty Ltd – LDS Review Consultation Feedback

Thank you for inviting industry and other stakeholders to make submissions in relation to the Department of Climate Change, Energy the Environment and Water's (DCCEE) review of long duration storage (LDS) infrastructure requirements.

As a specialist large-scale battery energy storage system (BESS) developer, Firm Power Pty Ltd (Firm Power) provides solutions that mitigate against network constraints and potential reliability issues. We welcome the opportunity to participate in this critical process and work with the New South Wales (NSW) Government to achieve an efficient and effective approach to energy storage, advancing the NSW Electricity Infrastructure Roadmap (Roadmap).

LDS is a critical element in ensuring energy reliability within a variable generation environment. Quantifying what is **long duration** does, however, present challenges with respect to balancing the reliable delivery of power during unserved energy events (USE) and the timely establishment of the necessary infrastructure at a reasonable cost. Appropriately defining LDS is a key element in achieving the requisite system reliability within the necessary timeframe, whilst avoiding the imposition of unreasonable costs.

Firm Power welcomes this review process and re-examination of the statutory framework in respect of LDS. We have provided detailed responses below to the specific questions set out in the *Review of Long Duration Storage (Part 6 of the Electricity Infrastructure Investment Act 2020) – Consultation Paper*. Please do not hesitate to contact myself or Ben Cerini, Energy Markets Manager at [REDACTED] if you require additional information.

Your sincerely,



Christy Englezakis

Development Manager, Firm Power

[REDACTED]

Question 1: What is an appropriate minimum duration for long duration storage infrastructure in NSW for 2030?

The Australian Energy Market Operator's (AEMO) recommendation to reduce the defined minimum duration for LDS infrastructure is a positive step in meeting the DCEEW's 2030 renewable energy infrastructure objectives. It is considered that a **four-hour minimum duration** would address the key objectives under the Roadmap, facilitating a more flexible storage technology mix in the short term, to cost-effectively achieve desired reliability.

As the AEMO has identified, establishing consistent firming through eight-hour LDS, relying on pumped storage hydro (PSH) in the near term, is unlikely. PSH has lengthy planning, approval and construction timeframes, significant capital costs and is inflexible in relation to siting. Although of strategic importance, such projects also present significant costs to taxpayers.

Smaller capacity, shorter duration storage, the cost of which is largely borne by the private sector, represents a cost-effective approach to achieving the immediate Roadmap priorities. It is acknowledged that an eight-hour (or longer) minimum duration, such as is currently prescribed under the *Electricity Infrastructure Investment Act 2020* (NSW) (EIIA),¹ represents a more economically efficient firming scenario in the longer term. However, defining LDS as a minimum four hours does not preclude the development of eight-hour storage, as evidenced by the awarding of LDS Long-Term Energy Service Agreements to multiple eight-hour projects.

Enabling the entry of more four-hour infrastructure will facilitate the efficient provision of fast-response firming that is sufficient to meet a majority of USEs in the short-term. In addition to the cost benefits, such storage can be flexibly located/co-located with generation assets, has a smaller footprint and can be constructed relatively quickly.

Defining LDS clearly communicates priorities in respect of the current and future grid, enabling investors to make consistent assumptions and regulators to establish statutory and market rules. Any such definition must, however, be sufficiently flexible to respond to the grid mix, including existing generation and storage, and as the energy system continues to transition. A four-hour duration represents a responsive standard under current conditions, with the expectation that storage requirements may increase over time.

Question 2: Should the Minister have regulation making powers to change the minimum duration of long storage duration infrastructure over time?

Responsive flexibility is required in determining what constitutes LDS for the purposes of addressing demand, reliability and cost-effectiveness within the market context, at any point in time. Whilst a defined duration provides for consistency and certainty, it may not, in the future, represent demand in relation to USE events, nor the necessary mix of firming capacity and storage.

¹ Part 6, division 1, s 43 (1)(b).

Establishing a regulation making power under which the Minister may change the minimum duration will facilitate a more responsive approach to meeting the overall and minimum objectives for LDS to 2030 and beyond. A defined benchmark for minimum duration is applicable only to the extent that it continues to represent storage with sufficient duration to provide firming capacity and support grid adequacy and resilience. This standard may therefore vary within the Roadmap timeframe, influenced by advances in generation technology, project approval and construction timeframes, as well as progress against the milestones established under the Roadmap and the Energy Security Target.

Whilst this proposal is broadly supported, it is considered that any such power must be reasonably constrained. Measures, such as defined statutory timeframes for review and the adoption of any amended LDS benchmark, as well as prescribed consultation with the AEMO, are necessary to ensure any change is optimal. This means that any alteration to the minimum duration must balance reliability and cost factors with the provision of sufficient commercial certainty to incentivise ongoing investment by the private sector in appropriate LDS infrastructure.

Governance arrangements could include, for example, a biennial review period, a methodology for determining the optimal minimum duration, information and advice provisions (defining from whom and when the Minister may obtain relevant information and advice) and notice requirements in respect of review processes and decisions. Establishing a statutory framework around LDS will assist both government and industry to manage risks and adjust the nature or timing of necessary investments. Should the EIA definition of LDS be amended, these arrangements could also accommodate clear requirements in respect of the decision-making process by which a four-hour minimum duration project may be preferred over longer duration infrastructure.

Question 3: How can the infrastructure objectives and LDS tenders be improved to support a diverse range of long duration storage projects? Are new measures required, such as:

- **Requiring the Consumer Trustee to explicitly consider the benefits of duration in calculating financial value to consumers;**
- **Requiring the Consumer Trustee to discount the capacity of projects with duration less than 8 hours (if allowed) as though the duration is 8 hours when calculating financial value to consumers; and**
- **Establishing a minimum LDS objective for 2035 to provide more certainty for proponents with long lead times projects.**

It is expected that the relaxing of the duration requirement to four hours would promote investment in longer duration storage projects while also simultaneously providing firming capacity for a significant number of market events. We would also suggest that assets should be able to bid a portion of their registered capacity for the full duration of the storage asset to effectively bid in a longer duration asset into the LDS (i.e. bid a 100 MW/400 MWh into the LDS as a 50 MW/400 MWh asset, effectively as an eight hour asset; or a 100 MW/200 MWh as a 50 MW/200 MWh, effectively as a four hour asset).

A key consideration for developers is to have clarity regarding the procurement volume and cadence of auctions under the LDS scheme. This clarity provides greater confidence to develop projects knowing that there are opportunities available and that such projects may be pursued in anticipation of these auctions. We have seen in other jurisdictions, such as the Contracts for Difference auctions in the UK, that when there is certainty around auctions this provides confidence and promotes competition for those contracts, which is of benefit to both the consumer (lower prices) and to developers (certainty of auction processes).

Question 4: Should the NSW Government introduce amendments to the LDS definition to clarify it can include aggregated LDS infrastructure across multiple sites? Should aggregated LDS infrastructure need to register on AEMO's NEM Registration and Exemption List and participate in central dispatch?

Aggregated LDS infrastructure of sufficient capacity represents an additional firming opportunity and reliability measure, provided at minimal cost to energy consumers. As the energy system transitions, managing risks and uncertainty to ensure consistent provision of electricity is critical. Aggregated units can be leveraged where market gaps exist and as larger LDS projects are developed.

We would suggest, however, that any asset that is part of the LDS scheme should be required to be registered with the AEMO for central dispatch into the NEM. The LDS scheme is designed to allow for NSW to meet the minimum reliability standard, which means minimising the intervals of lost load. Where the AEMO is the body in charge of ensuring that the supply demand balance is met, it should have visibility of assets that are available in the dispatch process to respond to those events. If those assets sit outside of the central dispatch process, this creates an unspecified reserve gap that is not visible to the market for the purposes of meeting that demand.