



Havenlaan 86C, box 204
1000 Brussels, Belgium
www.ldescouncil.com

NSW Department of Climate Change, Energy, the Environment and Water

Re: Review of Long Duration Storage (Part 6 of the Electricity Infrastructure Investment Act 2020) consultation paper

Response from the Long Duration Energy Storage Council (LDES Council).

The LDES Council is a global non-profit with over 60 members across 22 countries including Australia. The LDES Council works to accelerate the decarbonisation of our world through the application of long duration energy storage. The LDES Council provides member-driven, fact-based guidance and research to governments, grid operators and major electricity users on the deployment of long duration energy storage for society's benefit by lowering costs to reduce emissions, adding flexibility, and ensuring resilience.

There are a wide range of LDES technologies within four broad families of mechanical, chemical, electro-chemical and thermal. They provide multiple benefits in respect of the decarbonisation of power and heat, operating over time scales that range from multiple hours, days, weeks, months to seasonal, with many individual use cases. The LDES Council defines LDES as those technologies capable of dispatching stored energy continuously for durations of 8 hours or more including weeks, months and seasons.

Analysis by the LDES Council finds up to 8 TW of LDES - both for power and heat applications - is needed for full global decarbonisation. Furthermore, developing these resources could reduce system costs by USD 540 billion annually by 2040.

The LDES Council welcomes the opportunity to respond to the NSW Department of Climate Change, Energy, the Environment and Water's consultation on Long Duration Storage. NSW's target of 2 GW of long duration storage by 2030 (in addition to Snowy 2.0 and projects committed to before 2020) demonstrates a clear awareness of the essential role that long duration storage will play in NSW's and Australia's energy transition. Setting such targets provides clarity, direction, and accountability for policymakers, industry, investors, and stakeholders so it is important that they are maintained, replicated and built upon.

1. What is an appropriate minimum duration for long duration infrastructure in NSW for 2030?

The LDES Council strongly recommends maintaining 8 hours as the minimum duration for long duration infrastructure. As power grids rely on increasing amounts of variable wind and solar PV, the duration of storage required to provide resilience and flexibility will only increase. This will increasingly be the case in NSW and Australia more broadly through the 2030s. It is therefore important the NSW government does not hinder its long-term decarbonisation objectives, including the goal of minimising overall costs to consumers, through a focus on just one year (2030). We note for example that the expected closure

Havenlaan 86C, box 204
1000 Brussels, Belgium

Long Duration Energy Storage Council
1890 Bryant St. Suite 402
San Francisco, CA 94117 United States

www.ldescouncil.com



date of two major coal plants (Bayswater and Vales Point) is 2033. Not including the closure of these plants in the analysis therefore runs the risk that shortly after the 2030 reference date there will in fact be a significantly higher chance of long duration unserved energy events. In addition, longer durations of storage will help provide resilience in the event of more frequent extreme weather events and increases in demand, for example through faster-than-expected growth in data centres (in the United States it has been estimated that data centres' share of overall electricity consumption will grow from 4% today to up to 9.1% by 2030¹).

Furthermore, policy and regulatory consistency is an important factor in attracting investment and building robust, low-cost supply chains. Changing definitions runs the risk of sending unintended signals to investors, potentially leading them to scale back investment in these critical technologies. This in turn may lead to higher overall costs for consumers and a less resilient, higher-carbon power system.

The LDES Council recommends that procurement of storage assets takes advantage of the benefits of diversity offered by different long duration storage solutions. These include increased resilience in respect of global supply chains, potentially fast deployment times and long in-service lifetimes.

The LDES Council further notes that shorter duration technologies can still have an important role to play in NSW and globally. We would recommend however that, where there is an identified need for shorter durations, these are procured separately under an alternative mechanism rather than through schemes specifically set up to secure the benefits of long duration storage. This will help provide clarity and certainty to industry and stakeholders, and avoid sending potentially confusing signals on policy that may then need to be changed again as the energy transition gathers pace.

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

It is important any power to change key aspects of the policy framework is exercised in a transparent and consultative manner. Investors welcome consistency and certainty, which in turn leads to a lower cost of capital and, ultimately, lower consumer bills. Therefore, we recommend any power is exercised with caution, with upfront clarity on the circumstances in which it may be deployed.

3. How can the infrastructure objectives and LDS tenders be improved to support diverse range of long duration storage projects

Long duration storage technologies can fulfil an exceptionally broad range of system needs. As well as enabling the shifting of energy consumption over many different timescales, the family of LDES technologies can also provide ancillary services that are vital for grid stability. It is crucial therefore that the tender support a diverse range of technologies to enable the lowest cost transition for NSW consumers.

¹ Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption
<https://www.epri.com/research/products/3002028905>



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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?

The LDES Council has no comment on this at this stage.

The LDES Council is grateful for the opportunity to respond to the Department of Climate Change, Energy, the Environment and Water's consultation. Please do contact us if you need any clarification or further information.

Regards,

Alex Campbell

Director of Policy and Partnerships

Long Duration Energy Storage Council