18 June 2024

Anthony Lean
Secretary
Department of Climate Change, Energy, the Environment and Water (DCCEEW)
NSW

Lodged via email: lds.review@dpie.nsw.gov.au

Dear Mr Lean,

Review of Long Duration Storage (LDS) – Consultation Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on NSW DCCEEW's review of Long Duration Storage (LDS).

Origin considers that storage of all durations has a role to play in the transition, including for firming. A mix of longer (e.g. 8 hours) and shorter (e.g. 4 hours) duration storage would likely best meet NSW's reliability and firming needs. The Consultation Paper proposes changing the definition of LDS from a minimum duration of 8 hours to 4 hours. While this would provide more flexibility in the context of the 2030 NSW Roadmap Objectives, any reduction in duration should not be at the expense of facilitating longer duration LDS, given its critical role in the system. We therefore suggest the following:

- To promote an optimal mix of storage durations, we support exploring the additional options set out in the Consultation Paper aimed at facilitating longer duration LDS, namely valuing storage duration along with a separate target for longer duration storage.

- A more flexible approach to implementing the capacity of storage by not restricting it to registered capacity should be considered to ensure that some technologies are not inadvertently prevented from participating.

- The structure of long-term energy service agreements (LTESAs) should be re-examined to better capture the distinct risks facing longer duration LDS.

We provide further detail below on these points for DCCEEW's consideration.

Minimum duration of LDS

The NSW Roadmap has a minimum objective of constructing at least 2 GW / 16 GWh of long-duration storage (LDS) by 2030. LDS is defined in the legislation as assets able to operate continuously for at least eight hours at registered capacity. Only these assets can currently participate in the LDS LTESA process, while shorter duration storage can only bid into firming tenders which are run by exception in NSW.

The Consultation Paper proposes to provide more flexibility in tenders for LDS infrastructure by reducing the minimum duration of LDS to four hours based on AEMO Services Limited (ASL) modelling which shows that portfolios with a mix of 4- and 8-hour storage represent lower costs for NSW consumers in order to meet reliability in 2030. Origin understands the rationale for this particularly in the context of the 2030 NSW Roadmap Objectives. The challenge in lowering the minimum duration is that it could lead

Origin Energy Limited ABN 30 000 051 696 • Level 32, Tower 1, 100 Barangaroo Avenue, Barangaroo NSW 2000
GPO Box 5376, Barangaroo NSW 2000 • Telephone (02) 8345 5000 • Facsimile (02) 9252 9244 • www.originenergy.com.au

to unintended consequences, which is recognised in the Consultation Paper with ASL noting that it has the potential to undermine the viability of longer duration storage projects.[1]

We agree that there are trade-offs involved in reducing the duration of LDS. Longer duration LDS spans a wide array of technologies, including chemical batteries, advanced-compressed air energy storage (such as the project that was recently awarded an LDS LTESA[2]), and pumped hydro energy storage, each with unique characteristics. For example, some longer duration LDS may have very long project lead times or might involve technologies that are perceived to carry additional delivery risk compared to more established shorter duration technologies. They may also have different risk profiles such as different construction, storage degradation and geotechnical risks. In addition, some technologies may not yet be mature but may become cost competitive rapidly over the coming years as they develop further at which time they could be on par with more mature assets.

While over the longer term we would expect longer and shorter duration to be on a more level playing field, in the immediate term, if the minimum duration is reduced, there is a risk that the tender process may be biased towards specific shorter duration technologies. This would then disincentivise investment in longer duration LDS, which could lead to an over-build of shorter duration storage resulting in a sub-optimal portfolio and less diverse generation mix. As a result, while we understand the rationale for reducing the minimum duration particularly in light of the 2030 Roadmap and reliability targets, this should not be at the expense of facilitating longer duration LDS given the critical role they play in the system.

Given this, we consider it is appropriate to examine additional support for these types of technologies to level the playing field. The Consultation Paper proposes three options for supporting longer duration LDS:

1. Explicitly valuing the benefits of duration.
2. Requiring ASL to prioritise longer duration over shorter duration LDS in the LTESA tender process.
3. Establishing a minimum LDS objective for 2035 to account for the longer lead time of these projects.

Origin considers that all three options have merit.

Valuing the benefits of duration either via Option 1 or Option 2 would level the playing field in the tender process, particularly with respect to longer duration technologies that do not have long construction lead times. Importantly, LTESAs would still only be awarded to the best projects at least cost to consumers considering all merit criteria. However, valuing the benefits of longer duration LDS would ensure a wide range of technologies would be in the mix to meet the 2030 Roadmap objectives which would promote an optimal portfolio of storage duration. If Options 1 or 2 are progressed, they should be implemented transparently to ensure all proponents understand how the benefits are being valued and how projects are being assessed within the tender process.

Option 3 would establish a separate minimum LDS objective for 2035 (and presumably, a distinct tender process or merit criterion to facilitate this). This is also appropriate particularly for technologies which have longer lead times or are less mature but that may have a role to play in meeting reliability in the longer term.

We consider Option 3 could be implemented together with Option 1 or Option 2, particularly if distinct tenders are run. There could be one tender open to 4 hour + storage technologies which levels the playing field for all durations via Option 1 or Option 2; and a separate tender for 8 hour + storage

[1] DCCEEW, Review of Long Duration Storage, Consultation Paper, p. 20
[2] Ibid. p. 11

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underpinned by a longer term (e.g. 2035) target. Importantly, a 2035 target should not preclude consideration of sub-targets for 2030 or merit criteria that value earlier delivery, consistent with the current Roadmap objectives.

Other changes

We suggest the following two additional options for improving flexibility:

- Some LDS technologies are flexible in how they can delivery on the 16 GWh of storage by 2030, including by altering their registered capacity (MW) to provide energy (MWh). The prescription around "registered capacity" means that some technologies may be limited in how or if they participate in the tender process given that they cannot deviate from their registered capacity, even though this would support reliability. More flexibility around "registered capacity" would ensure these technologies are not precluded from participating.

- In addition to introducing more flexibility in the legislation, we suggest the structure of LTESAs should be re-examined to more appropriately capture the distinct risks facing longer duration LDS noted above, including construction, storage degradation and geotechnical risks.

If you wish to discuss any aspect of this submission further, please contact me at [redacted] or by phone, on [redacted].

Yours sincerely,

Sarah-Jane Derby
Senior Manager, Regulatory Policy

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