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COAG Energy Council Secretariat
Department of the Environment and Energy
GPO Box 787
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Via email: info@esb.org.au

Date: 5 April 2019

Subject: Hydrostor Australia Pty Ltd, Response to National Electricity Rules Amendments – Retailer Reliability Obligation

Dear Secretariat,

By way of this letter, Hydrostor Australia Pty Ltd (Hydrostor), a wholly owned subsidiary of Hydrostor Inc. based in Toronto, Canada, provides its feedback on the draft National Electricity Rules Amendments as they relate to the Retailer Reliability Obligation (RRO).

Hydrostor has reviewed the Draft Rules for Consultation as they relate to the development and deployment of its Advanced Compressed Air Energy Storage (A-CAES) technology in the National Energy Market (NEM) and, at a high level, highlights that it is unlikely that new capacity will be built on the back of the RRO (for the reasons outlined below). In turn, the RRO will find it difficult to meet its first key driver, which involves the increased contracting required to unlock new investment. This will result in limited competition in the generation market and consumers continuing to pay for the risk premia associated with un-contracted cash flows until this is resolved. Furthermore, new grid investment is not only important for reliability outcomes, it is important within the context of delivering least-cost planning outcomes in the AEMO's recent Integrated System Plan, which identifies significant needs for new electricity infrastructure. The RRO is an important part of the overall toolkit to address these needs, while simultaneously mitigating consumer costs/exposure.

Hydrostor's A-CAES technology is an important element of the solution set going forward: A-CAES is a leading low-cost, bulk-scale energy storage solution that provides long-duration storage that can be flexibly sited where required by the grid and can easily be scaled up to deliver hundreds of megawatts of emission-free dispatchable capacity in a fifty-plus-year asset, with no performance degradation throughout its lifespan (unlike Battery Energy Storage). As a result, A-CAES, like pumped hydro, is well placed to provide high capacity, long duration electricity storage cost-effectively for the NEM. A-CAES itself is additionally advantageous given its ability to flexibly site where the grid requires, making it uniquely well-suited to displace fossil-fueled peaking capacity and act as a viable non-network alternative to transmission augmentation.

Hydrostor provides the following specific response in relation to the draft NER Amendments in relation to the draft rules related to implementing the RRO:

- New-build electricity assets will, in general, require at least 10 years of secure cash flows for a meaningful proportion of output to underwrite the investment to develop and deploy the asset. Therefore, the relatively short time horizons indicated in the draft RRO do not align with the current investment landscape. It is also logical that this secured portion of output be associated with the reliability/capacity benefit provided to the grid, since this is currently not intrinsically compensated within the context of the NEM. The RRO therefore provides a valuable opportunity for Australia to not only secure an important hedge on consumer electricity costs, but also provide contractual security to project developers of long-life new-build electricity infrastructure thereby ensuring successful and cost-effective delivery of projects;
- A-CAES, like pumped hydro and other long-lived energy assets, typically has development time horizons, to take a project from concept to commercial operations, longer than typical off-the-shelf, pre-manufactured solutions like renewable projects or lithium ion batteries. Not recognizing these longer development timeframes could therefore reduce the overall competitiveness of multiple

solutions to enable the lowest-cost, long-term outcomes for consumers. The T-3 and T-1 aspects of the draft RRO will be insufficient to enable these longer-life assets to be developed to meet the required timelines;

- The short time horizons contemplated in the draft RRO are likely to attract short-term solutions to meet the requirements of each Reliability Instrument that will invariably result in less sustainable and less cost-effective outcomes in the longer term (as well as result in significant barriers to the achievement of AEMO's least-cost planning outcomes in its Integrated System Plan). Emission-free, sustainable assets like A-CAES and pumped hydro are more cost-effective at scale and over long-durations and also have long-term lives (i.e. 50+ years); hence, these assets justify the longer cash flow tenure and reasonable notice periods required to underwrite their development and deployment. The RRO should be structured to enable the development and deployment of sustainable and long-term cost-effective solutions;
- When the methodology for calculating 'firmness' is developed, it is critical that the duration of supply from energy storage assets is carefully considered, along with a recognition of long-duration (6 to 12 hours+) storage as superior for providing "firm" capacity and meeting reliability needs; and
- Hydrostor anticipates that a separate process may need to be established if the long-term intention of the RRO is to stimulate the investment of new-build, low-cost, long-term solutions, versus incentivizing existing, inefficient capacity to stay online.

In order for AEMO to best meet its long-term planning objectives, Hydrostor is supportive of policy and amendments to the NER that provide clear long-term investment signals for the electricity sector to facilitate AEMO's own least-cost planning outcomes in the Integrated System Plan, particularly the significant new investment required to address retiring fossil-fired generation. The RRO is an important potential tool in this mix, but only if it addresses some of the key points noted herein.

We note that significant work has been undertaken to progress the RRO in terms of the material settings under which it will operate, such as identifying the reliability gap, the methodology to assess the firmness of qualifying contracts, and the assessment of compliance and penalties, and that these settings may have impacts on the operation of the RRO and the subsequent costs and benefits that flow through to consumers. Hydrostor believes that a further assessment of the costs and benefits of the RRO will be important to ensure the long-term outcome is low-cost, sustainable pricing with reduced volatility, while capturing the benefits of an increased volume of variable renewable energy on the NEM.

Should you have any questions in relation to this submission, please don't hesitate to contact me at 0439 090 706 or greg.allen@hydrostor.ca.

Yours Sincerely

Greg Allen
Managing Director
Hydrostor Australia Pty Ltd