

1 March 2021

Australian Energy Market Operator (AEMO)
Level 22/530 Collins St,
Melbourne VIC 3000

Submitted by email to ISP@aemo.com.au

Integrated System Plan (ISP) Methodology Issues Paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Issues Paper from the Australian Energy Market Operator (AEMO) on the Integrated System Plan (ISP) Methodology.

A core foundation of a smooth transition in the NEM is the ISP with the timelines of interconnection for strategic projects vital. The ISP is able to show the economic benefits under all scenarios including the timing of some elements under different assumptions, particularly relating to the rate of change and the progress of proposed major energy storage initiatives. We therefore support AEMO continually improving the ISP methodology to support the strategic transmission requirements of the NEM.

With the increase in variable renewable generation, and the gradual retirement of the existing thermal fleet, it is critical that transmission planning is coordinated to maximise efficiency and consumer utility. Timing of transmission needs to be at the forefront of the ISP methodology to effectively respond to state and federal policies which require firm generation to be connected to the NEM.

The NSW infrastructure roadmap for example could increase implementation and timing risk for the ISP and lead to material reliability changes in circumstances. It is for this reason the ISP methodology as part of the approach to firm contribution factors for storage should understand the potential reliability implications of short-duration storage firming the REZ's in NSW and possible delays to the eligible long-duration storage sites proposed under the NSW Roadmap, with the 2GW of firming storage yet to be named or officially proposed.

The NEM needs timely and necessary improved transmission interconnection which will increase competition in wholesale markets helping to reduce prices. In addition greater transmission interconnection between States would massively reduce the threat of reliability issues across the NEM. Failure to commit to appropriate infrastructure now will hinder the transition which places greater importance on the connection of strategic projects.

ISP Firmness of Storage

AEMO has done a comprehensive job with the ISP. Snowy Hydro supports AEMO's proposed changed approach to firm contribution factors for storage. With the 2020 ISP assuming all storage to have a firm capacity contribution that was equal to its maximum capacity, we agree with AEMO that it was likely that the method *"overestimated the reliability benefits of these technologies in many situations, particularly short-term storages"*

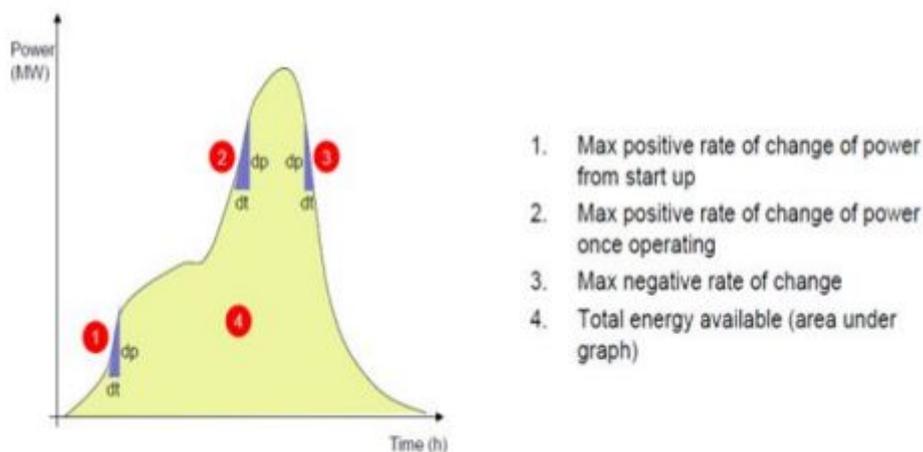
such as batteries with one or two hours of energy storage, if the peak demand event can extend beyond the storage depth".¹

As AEMO proposes to explore new methodologies which generalise the reliability benefits of different storage configurations Snowy Hydro is willing to assist in exploring new methods. The proposed method to determine a reasonable approximation of the duration of peak demand events and to adjust the firmness to reflect the contribution that could be provided across this period is a sensible approach. To further assist in the firmness of storage methods there are certain other factors AEMO should consider, if it has not already been done so.

In understanding the dispatchability and flexibility Snowy Hydro believes that AEMO should consider factors such as predictability of the resource; the capacity over time location of the resource and the ability of the resource to match load when assessing the firmness of storage.

There is currently no measure to categorise whether a particular dispatchable generation source is flexible over sustained periods. The flexibility metrics could be considered for the system to understand how each source of generation could perform. The test for flexibility of dispatchable generation should not be confined to tests over a few hours rather the flexibility should also include tests over consecutive hot days.

Figure 1: Flexibility metrics



The NSW infrastructure roadmap proposes pumped hydro projects with little detail on timing or location. This makes it difficult to understand potential impacts on the ISP and could provide a false sense of reliability to the NEM. It is therefore important that AEMO forms scenarios on the different types of pumped hydro projects that could proceed and assume different duration periods with scenarios that include storage with short duration periods.

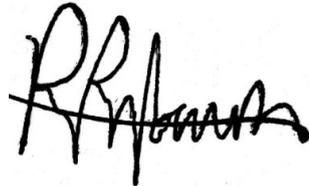
The ISP should focus on the power system needs which include the market reliability standard, relevant transmission reliability standards, power system security and public

¹ AEMO Integrated System Plan (ISP) Methodology Issues Paper

policy needs. With respect to public policy needs, AEMO should incorporate State and Federal government environmental and energy policies into its central case where there is a current policy commitment with clear articulation of when and how it will be implemented.

Snowy Hydro appreciates the opportunity to respond to AEMO on the Issues Paper on the Integrated System Plan (ISP) Methodology and any questions about this submission should be addressed to panos.priftakis@snowyhydro.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. Priftakis', with a horizontal line drawn through the middle of the signature.

Panos Priftakis
Head of Wholesale Regulation
Snowy Hydro

