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Australian Energy Market Commission  
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## **Integrating Energy Storage Systems into the National Electricity Market (NEM)**

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the draft decision from the Australian Energy Market Commission (the Commission) on Integrating Energy Storage Systems into the NEM.

The NEM faces an urgent challenge in the need to increase shallow and deep storage capability. While the storage solutions are within reach, the Commission's unexpected decision in respect of transmission use of system (TUOS) charges jeopardises storage investment. This is a major policy change, amounting to a tax on infrastructure critical to achieving a renewable future. Achieving State-based renewable energy targets, through renewable energy zones or otherwise will become more expensive under the draft decision.

The recent AEMO Integrated System Plan (ISP) highlighted that 6-19 GW<sup>1</sup> of new dispatchable resources are needed to firm up the variable renewable generation which would come from utility-scale pumped hydro and large-scale battery energy storage systems. Instead the decision by the Commission will add costs to these technologies increasing the spread in price required for a storage facility to remain viable and leaving consumers with a less reliable NEM.

The Commission's characterisation and apparent justification of its draft decision as 'not a major change' to the Rules is misleading. It is wrong for the Commission to contend that its decision in respect of TUOS represents 'no change' when both Australian Energy Market Operator (AEMO) and the Commission accept that the current rules relating to the application of TUOS to storage are unclear. There is no current baseline approach, but the draft decision would effectively confirm that storage assets would be liable for TUOS, subject to their ability to negotiate TUOS charges under a negotiated service, thereby entrenching a clear starting point of TUOS liability for storage.

The Commission should not use a rule change to implement a policy outcome that is at odds with both the rule change proposal and the existing rules and that does not have the majority of stakeholders and industry supporting the change. The process by which this draft decision has been proposed is also of huge concern, being introduced at the penultimate stage of the rule-making process without any prior notice thereby curtailing consultation and feedback opportunities. Despite AEMO seeking to clarify that storage should not pay TUOS, the Commission is doing the opposite by reinforcing its view, that storage should, as a default position, be liable for TUOS.

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<sup>1</sup> AEMO ISP 2020

Snowy Hydro is concerned that AEMO's advice on TUOS arrangements has been ignored. AEMO highlighted a number of problems with the status quo, whereby storage assets are exposed to uncertain TUOS liability. The Commission's decision would not resolve this uncertainty, it would only confirm the default exposure of storage to TUOS charges. It makes the situation worse, not better, creating new uncertainty and risking an investment slowdown. Likely impacts of the decision include:

- Distort competition. As the new rules would effectively no longer recognise the concept of auxiliary supply for pumped storage, pumped hydro assets will bear an unfair allocation of the costs of the transmission system, harming competition.
- Significant costs for storage compared to other technologies: generators, unlike storage, will not have TUOS exposure, even though they are competing energy providers. Therefore the proposal does not meet the NEO.
- Requiring storage operators to contribute to both generation and demand gives an unfair advantage to generators (whose imports are typically a small proportion of exports) compared to storage (whose imports typically exceed exports).
  - This will lead to inefficient investment in generation as you would need to build additional generation assets to meet supply
- Distort spot prices and create economically incorrect signals for market participants. Storage operators liable for TUOS charges will recover those charges through an increase in energy prices. This is inefficient (recovering fixed network costs through variable wholesale offers) and amounts to an inefficient 'rebundling' of network costs. Recovery of TUOS from end use customers (rather than storage or generation) is the least distortionary approach.

One of the Commission's stated aims is for "storage to be treated equitably compared to other participants in the recovery of non-energy costs". Yet to suggest there should be an equivalence between recovery of TUOS from storage and other types of load is wrong. Generation in the NEM is not required to pay TUOS. Storage assets play an analogous role. Storage assets are not end users of electricity, being connected to the network primarily to provide flexibility and energy services. Rather than recognising the role of storage as intermediate load, the draft decision effectively treats storage as analogous to end-use consumption. There is no rationale for storage to contribute to both generator connection costs and shared network TUOS charges.

The draft decision ignores difficulties faced by storage owners negotiating TUOS charges. The rational incentive for network operators, who typically occupy a monopoly position, is to maximise the recovery of TUOS charges from generators. As observed by AEMO, this uncertainty is already deterring prospective investment in storage and the decision would make the situation worse. The Commission provides no guarantee that the TNSP will not set a price that is higher than what is cost-reflective, may impose unreasonably onerous non-price conditions or may offer different pricing to different proponents seeking the same type of negotiated services. This unequal bargaining position is complicated by NSPs' own storage investments, notwithstanding ring-fencing guideline which will disadvantage market participants.

EnergyAustralia has noted that exposing its 250MW Cultana Pumped Hydro project to TUOS could impose costs of \$15 per annum<sup>2</sup>. It stated that the project's pumping capability would only temporarily store energy before transmission to consumers, and therefore TUOS charges should be applied only to final consumers, otherwise there

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<sup>2</sup> [https://arena.gov.au/assets/2017/09/Cultana-Pumped-Hydro-Project-\\_Public-FINAL-150917.pdf](https://arena.gov.au/assets/2017/09/Cultana-Pumped-Hydro-Project-_Public-FINAL-150917.pdf)

would be 'double charging' for the same units of electricity. Snowy Hydro shares EnergyAustralia's concerns. Such 'double charging' would have a material financial impact on existing and future Snowy Hydro pumped hydro projects.

The draft decision is not consistent with the ESB's final advice to energy ministers for the Post 2025 Market Design. That advice emphasises the need to incentivise and separately value system services, whereas this proposal would reduce investment in the assets which would supply those services, and would rebundle energy and other market costs.

### **Auxiliary Load and Storage**

The draft decision proposes a definition of "auxiliary load" which specifically excludes electricity consumption used to pump water for a pumped hydro production unit. This is remarkable and contradicts the basic logic of pumped storage. Pumped hydro facilities are typically considered the textbook example of auxiliary load.

### **AER Issues Paper**

The Commission should consider AER Issues Paper on AEMO's proposal for the Electricity Transmission Pricing Methodology for 1 July 2022 to 30 June 2027<sup>3</sup>. AEMO proposes to not charge energy storage systems for either supply (discharging) or consumption (charging) in the 2022–27 regulatory control period. This is consistent with the approach set out in the enforceable undertakings between the AER and AEMO for 2019–20 to 2021–22. The draft decision is inconsistent with this approach.

### **Pumped Hydro**

AEMO is expected to spend more than \$20 million on implementing the proposed changes to registration categories under the Rules. However, the relevance of this rule change remains limited for pumped hydro. Pump Hydro Energy Storage is a mature technology that has been connected to the grid since the start of the NEM, and will play an increasingly important role in managing the growth of renewables. It is therefore important that the existing (or future) pumped hydro assets are not required to change its registration category to IRP.

### **Storage system operability**


It is important that AEMO remains aware that pumped hydro units cannot ramp linearly and that the proposed rule does not require them to do so. The new participant category is focused on small battery bi-directional resource providers designed to operate load with the same degree of control as generation. In large pump mode, a pumped hydro unit cannot control its load other than a quick 15 to 20 second ramp to full load. AEMO should therefore classify a pumped storage unit as a scheduled generating unit.

### **Price Bands**

Snowy Hydro welcomes the Commission's acknowledgment that it is preferable for bi-directional DUIDs to have 20 price bands (rather than 10 proposed by AEMO). This is consistent with the 20 price bands currently accessible to scheduled storage and will avoid any complexities in reducing the price bands to 10.

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<sup>3</sup> Issues Paper Australian Energy Market Operator Electricity Transmission Pricing Methodology 1 July 2022 to 30 June 2027 June 2021



## **AEMO Costs**

AEMO's costs to implement the change have increased from \$8-10m to over \$20m, yet there has been no quantitative assessment of the benefits of the proposal. More concerningly, there appears to have been no assessment of the potentially destructive impact on battery investment in respect of TUOS changes.

At a time when the Commission continues to consider conventional scheduling for non-scheduled generators as an unreasonable cost for the market it is surprising there has been no cost/benefit analysis for this proposal, given it will not only cost the AEMO (and, therefore, the market) \$20m as well as imposing significant costs on future storage investments. The Commission needs to consider this proposal in light of a cost benefit analysis and properly assess the concerns raised.

## **Alternative Approach**

The Commission should accept AEMO's advice that storage assets are not end users of electricity, being connected to the network primarily for the purposes of providing flexibility and energy services:

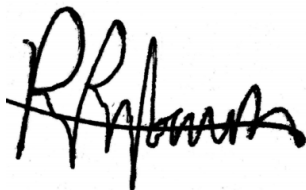
- Storage assets that do not have self-consumption as their primary function when operating as a storage facility should be exempt from TUOS charges.
- The definition of "auxiliary load" should be amended so as not to exclude electricity consumption used to pump water for a pumped hydro production unit.

## **About the Snowy Hydro Group**

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market (NEM) and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5,500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy. Collectively, they retail gas and electricity in South Australia, Victoria, New South Wales, Queensland and the ACT to over 1 million customers.

Snowy Hydro appreciates the opportunity to respond to the Commission on the draft decision on Integrating Energy Storage Systems into the NEM. Any questions about this submission should be addressed to [panos.priftakis@snowyhydro.com.au](mailto:panos.priftakis@snowyhydro.com.au).

Yours sincerely,



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