

11 February 2021

Ms Merryn York  
Chair  
Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Electronic Lodgement – ERC0280

Dear Ms York,

### **Draft Determination – Integrating Energy Storage systems into the NEM**

Energy Networks Australia (ENA) are pleased to have the opportunity to make this submission in response to the Australian Energy Market Commission's (AEMC) draft determination consultation on Integrating Energy Storage into the NEM being proposed by the Australian Energy Market Operator (AEMO).

ENA is the peak industry body representing Australia's electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

In principle we support efforts to create greater investment certainty for energy storage and hybrid facilities. As the cost of these technologies continue to fall, we will likely see rapid uptake in the coming years with impacts to both Transmission and Distribution networks requiring clear regulation.

### **Key Messages**

- » We believe option 3 for registration and participation strikes the right balance, achieving AEMC's objectives through minor, targeted amendments to allow bi-directional flow, while accommodating the other work on market design.
- » The new rule must also allow flexibility for future technology developments in hydrogen and other forms of grid-stabilising plant that may be commonly used in the future
- » TUOS and DUOS charging arrangements are designed to support the different technical circumstances for transmission and distribution networks and are articulated differently in the rules. A "one-size-fits" all approach to charging arrangements is unlikely to be appropriate without further thought and holistic reform.
- » Attention should also be drawn to reduce the possibility of gaming where having storage as a part of a hybrid connection should not mean that the existing underlying load does not incur UoS

- » A targeted approach is needed for aggregated, small-scale hybrid loads as we see potential for adverse consequences if they are forced to reclassify. Costs will almost certainly outweigh benefits
- » There are significant technical difficulties in coordinating separate protection and control systems to deliver performance standards at connection points. Some flexibility is required to allow this instead to be assigned to individual plant units.
- » ENA does not believe AEMO requires an expanded role in relation to connecting grid-scale batteries. There are no compliance issues and NSPs have always ensured that appropriate performance standards be negotiated to meet power security requirements.

### Participant Option 3 minimises regulatory burden

A large number of significant, interrelated rule changes are currently being considered and the complexity of their interactions may contribute to further industry confusion. It is important that the arrangements for scheduled and semi-scheduled generation/load connections on the transmission network and consistent with the AEMC Dedicated Connection Assets (DCA) framework<sup>1</sup>, the Energy Security Board (ESB) Post 2025 Market Design, Wholesale Demand Response<sup>2</sup> and Distributed Energy Resources (DER) access and pricing rule changes<sup>3</sup> to name a few.

We and our members are mindful that consideration for how energy storage is treated within the regulatory framework is required and therefore do not support option 1.

For options 2 and 4 we view the proposal to introduce the new participant categories of Bi-directional Resource Provider (BDRP) or Integrated Resource Provider (IRP) to be unnecessary and would introduce further complexity into an already busy environment. Simplicity in regulation should be a key objective to ensure understanding and compliance in all market participants and customers during this period of rapid change.

A minimal number of targeted amendments to the regulation is in the best interests of the NEM and customers which is why we support option 3.

### Flexibility that allows for future technology

Electricity storage is a flexible asset, with a range of technologies delivering different technical capabilities. As a result, electricity storage can be deployed in many locations in the power system: behind the meter, connected to the distribution network and connected to the transmission network. Storage can provide a range of services, sometimes simultaneously, supporting the physical performance of the networks and operation of the market (providing ancillary services and energy).

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<sup>1</sup> <https://www.aemc.gov.au/rule-changes/connection-dedicated-connection-assets>

<sup>2</sup> <https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechansm>

<sup>3</sup> AEMC rule changes to charge small and grid-scale generating systems in distribution networks for export services (ERC0309, ERC0310, ERC0311)

Storage may switch between different services on different timescales. For instance, in summer, a battery may act as a “sponge” to absorb generation from solar PV and increase demand to resolve minimum demand issues. Towards the end of the day, the battery may support the afternoon ramping. In winter the same battery may be providing capacity support at evening peak (or in summer for air conditioning load).

A battery that is deployed today for a particular application, may provide a completely different service in a few years’ time. Batteries can be designed to deliver a very specific service or to meet prescribed technical performance criteria, which may mean they are redundant or stranded once the need for that service has passed or if they are required to operate in a different way. This would not be an efficient approach.

Defining electricity storage in the regulations and specific technical performance requirements too rigidly may actually hinder the opportunities for storage to adapt and support both network operation, the wider power system and customers over time.

## Amendments to TUOS & DUOS are not required

Amending the existing generator registration category (option 3) to enable bi-directional energy flow without creating an entirely new bi-directional registration category, can provide a simpler, more effective rule. In the instance where all generation and all load attached to the generation system is scheduled/semi-scheduled and where the connection is on the transmission network, there would be no TUOS charge.

ENA and our members strongly believe that there is no uncertainty in the rules in relation to TUOS and DUOS treatment of energy storage. There are also concerns that handling Use of System (UoS) charges in the same way for energy storage systems does not represent the best interests of the NEM.

Charging arrangements can be dealt with through existing pricing processes and tariff structure statements that are subject to customer and AER approval. Flexibility for network businesses to determine when and where UoS is appropriately charged also plays a key part in ensuring that the framework remains fair for all, while maximising the efficient contribution storage can make to supporting the system.

TNSPs support an outcome where the storage component of a hybrid facilities is exempt from TUOS while loads not associated with the charging of the storage component are subject to TUOS. This would return the practical treatment of grid scale storage to that which applied to pumped storage prior to the AEMO changes of 2017. This could be achieved by requiring a load embedded in a hybrid facility to separately register as a market customer with appropriate metering capability.

The AEMC should ensure that the framework adopted for transmission connected hybrid facilities is fit for purpose and does not allow gaming. For example, if large load facilities added generation and/or storage they could seek to avoid paying TUOS for the existing underlying load component.

At the distribution level, DUOS is an important signal for investment and signals to connectees, including storage, on how to operate. This will be increasingly important as DUOS charges become more dynamic in conjunction with dynamic operating envelopes. It is anticipated that future holistic reforms may be required pending future changes, such as a move to a trader-services model or changes to 6.1.4 of the NER, however ENA is not proposing any changes are part of this consultation.

## The effect on small hybrid facilities

How this rule change will affect small hybrid facilities (embedded networks) that currently exist should also be taken into consideration. There are a relatively small number of such facilities connected to the NEM, but if they were forced to reclassify as a result of this rule change this would result in significant frustration and cost to customers.

We are aware of a number of agricultural operations currently classified as hybrid facilities that have a small amount of energy storage (<1MW) relative to the size of their connection (2MW+). Under some of the proposals being considered, they might be forced to bear significant costs to become a scheduled or semi-scheduled generator.

ENA suggests that while the AEMC should provide a direction for the industry by setting clear expectations for future systems, penalising these few existing cases now will incur significant costs to smaller customers for very little power system benefit.

## Technical standards

ENA supports the standards for any changed registration categories residing in the rules and subject to AEMO proposing and consulting on changes to Chapter 5 before rules changes are proposed to the AEMC.

Under the current framework, generator performance standards (GPS) are far more onerous than for loads, known as customer technical performance standards (CPS). We note this indicates that AEMO seeks greater control over bi-directional units and hybrid facilities.

We are also aware of some instances where TNSPs have encountered difficulties in specifying standards at the connection point for a combined facility. For example, where a synchronous hydro-generator and an asynchronous battery might have completely separate protection and control systems, this may cause coordination issues for the network at the shared connection point.

ENA believes that our members should have the flexibility to specify performance standards at the unit level to help mitigate issues of this nature and promote overall power system stability.

It also demonstrates the point where a broad-brush approach to specifying performance standards for a large number of asset types fails to account for specific characteristics. A key example would be the contrast between a transmission-connected combined facility and a distribution-connected VPP.

## AEMOs current role is sufficient for the rule

ENA does not consider an expanded role for AEMO is needed in relation to NSP connection agreements with their own grid scale battery.

At their heart, all connection standards are designed to positively contribute and protect the local network and larger power system. It is in neither the Transmission nor Distribution NSPs best interests to connect NSP-owned storage assets that do not at a minimum, meet the existing performance standards.

As noted in the paper, AEMO already has a function and ability to assess/reject negotiated access standards proposed by a connection applicant. We do not feel there is evidence of compliance issues with NSPs connecting their own batteries and developing the necessary connection agreements in cooperation with AEMO. Where the battery has a market facing component, it is likely that a third-party would be involved to perform this function, making this a non-issue.

AEMO currently advises NSPs on technical performance standards for synchronous condensers, and we believe a similar approach for storage should satisfy any concerns with maintaining the normal operation of the power system. Scaling up AEMOs function to perform a role which would unlikely be called upon would be administratively inefficient and hence not in the long term interests of customers.

ENA welcomes further discussion with the AEMC to better understand the implications of the rule while it makes a determination.

Should you have any queries on this response please feel free to contact Dor Son Tan, [dstan@energynetworks.com.au](mailto:dstan@energynetworks.com.au).

Yours sincerely,



Andrew Dillon  
Chief Executive Officer