

11 February 2021

Ms Anna Collyer
Chair
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Anna

Re: Integrating energy storage systems into the National Electricity Market options paper — ERC0280

CitiPower, Powercor and United Energy welcome the opportunity to respond to Australian Energy Market Commission's (AEMC) options paper relating to integrating energy storage systems in the National Electricity Market (NEM).

We support the AEMC's facilitation of integration of energy storage systems in the NEM. Due to its potential for 'value stacking', demand for grid-scale energy storage solutions is increasing rapidly across our communities—for example, we are undergoing a trial of pole-top mounted batteries on our United Energy network, and have recently signed a Memorandum of Understanding for a new community battery trial in CitiPower. We are also working with the Victorian Government on its recently announced \$11 million 'neighbourhood battery' initiative.

As the energy storage market is still in its infancy, distributors can unlock significant customer benefits from owning and operating the systems. Distributors are best placed to optimise the value of network services from energy storage, as:

- distributors are highly specialised in managing localised low voltage (LV) network constraints, including maximum and minimum demand and power quality constraints. This includes multiple streams of constraint and asset condition information from thousands of distribution transformers and customers
- distributors have significant safety and reliability obligations that have to date been difficult to contractually agree with third parties
- the market for grid-scale energy storage is still relatively immature and distributors can assist in fostering the market through their scale.

While providing efficient network services, the grid-scale energy storage will still have capacity to unlock other value streams, such as:

- customer shared energy—including consumption and storage
- providing other ancillary services to the NEM.

To ensure the full value stack of grid-scale energy storage is realised, the National Electricity Rules (the Rules) should allow distributor-owned energy storage systems to also participate in the NEM.

There are a number of barriers today to distributor-owned energy storage participating in the NEM. These include:

- the Australian Energy Market Operator's (AEMO) requirement for a connection agreement at the connection point of energy storage to the network, which would require the distributor to have a connection agreement with itself

- the requirement for a distributor to register as a market participant in cases where they also operate the energy storage. AEMO will not register a distributor as a market participant.

To facilitate an effective participation of distributor-owned energy storage in the NEM, we propose:

- the AEMC clarify distributors should not require connection agreements for grid-scale energy storage when they own the asset, as the storage is treated the same as any other network asset. Instead, distributors should be able to share whatever information is necessary with AEMO regarding the installed storage on their network. We understand this to include GPS location, metering arrangements, capacity and similar
- AEMO be permitted to enter into bilateral contracts for NEM services with distributors, similar to the current arrangements under the Reliability and Emergency Reserve Trader (RERT). This would circumvent the requirement for distributors to register as market participants.

Additionally, our submission highlights:

- we support the simplification of the existing registration process by combining existing participation categories into a single trader category, with enough flexibility for all potential market participants to register as traders. However, as the trader-service model is a long-term goal, the immediate priority should be updating the Rules to enable all energy storage to participate in the NEM, including distributor-owned systems
- it is inappropriate that operators of energy storage be required to pay for non-energy costs twice. In the near term, we support the non-energy costs of energy storage be based on net metered energy (option 2 in the paper). In the longer term, cost recovery should be based on a causer pays principle
- performance standards should be defined at the connection point, with the flexibility to define standards at the asset level, if required, for a more accurate representation of the plant performance
- more guidance is needed on the registration of direct current (DC) coupled systems.

We provide further details on the above in the body of the submission.

Should you have any queries about this submission please do not hesitate to contact Sonja Lekovic on 0418 166 169 or slekovic@powercor.com.au.

Yours sincerely,



Renate Vogt

General Manager Regulation

CitiPower, Powercor and United Energy

Distributors are well placed to enable the full value stack of energy storage

Grid-scale energy storage will provide multiple services across the electricity supply chain. Accessing these services will improve the competitiveness of storage and deliver multiple customer benefits, known as 'value stacking'. This is because a well-utilised energy storage unit can deliver a multiple benefits including:

- management of network peaks which has the potential to defer traditional augmentation and replacement expenditure reducing overall costs to consumers
- storing and supplying electricity at the local level, reducing network usage and related costs
- delivering wholesale energy services to the NEM
- provision of ancillary services to the NEM such as frequency control
- providing customers with solar photovoltaic systems an alternative to personal investment in a residential battery

The realisation of network benefits requires knowledge of:

- localised LV network constraints, including maximum and minimum demand and power quality constraints. This includes multiple streams of constraint information from tens of thousands of distribution transformers and connected customers
- a deep understanding of the condition of tens of thousands of distribution assets across the network. The condition of the asset is an important factor in determining both its future use and its ability to work in conjunction with the new technologies introduced on the network
- an understanding of the safety and reliability standards under which we operate, as well as the acceptance of duty to deliver to the standard.

There are many trials being undertaken across the country to get a better understanding of the complete value stack of energy storage. Indeed, it is likely the magnitude of the respective elements of the value stack will vary by location and over time. This will determine the value of network services from each storage unit. In cases where the highest value of the storage is network service, distributors may be best placed to own and operate those batteries at efficient cost.

On this basis we consider precluding distributors from providing services into NEM when they are best placed to do so is not in the long-term interest of consumers. Equally, requiring distributors to meet illogical requirements, such as having connection agreement for their own assets, is unnecessarily costly and again not in the long-term interest of consumers. As such, we consider there are several possible options for distributors to provide value into the NEM, including:

- clarify distributors are not required to have connection agreements with themselves when owning grid-scale battery; rather, distributors can share with AEMO all the specifics of the connected battery, including the GPS location, metering arrangements, capacity, technical standards, and similar, to provide AEMO with sufficient information in lieu of the usual connection agreement
- similar to the RERT contacts market, AEMO should be permitted to enter into bilateral contracts for ancillary services with distributors. This will ensure distributors can deliver excess value from energy storage to the NEM without the requirement to register as market participants, and at no additional cost to consumers.

However, the future registration model should have flexibility to allow distributors to register to participate in markets where they can deliver the full value stack from the use of their assets, whether distributor-

owned energy storage or through use of other assets on the network. Allowing distributors to participate in these markets will increase competition and lead to a higher utilisation of network assets, while allowing our customers to share in the revenue earned.

The trader-service model is the most appropriate registration model for the future NEM, but priority should be given to energy storage integration

We support simplification of the existing registration process by combining existing participation categories into a single trader category. We agree that this will allow greater flexibility to incorporate new technologies as they become available.

We also agree that moving to the trader-services model is likely to need to be progressive with a phased sequencing of new service-based rules that co-exist with the 'old NEM' approach for a period of time. However, such a phased approach should prioritise changes to the Rules that allow for distributor-owned energy storage to participate in the NEM, to maximise customer benefits as soon as possible.

The most significant consideration for the trader-service model is the need for universal performance criteria that is not technology specific. The current standards account for the limitations of certain technology types, however this approach is limited as technology advances. Creating a new universal category that is future ready will be a significant task one perhaps best managed as a longer term goal.

Performance standards should be defined at the connection point albeit with flexibility

Performance standards should be defined at the connection point, with the flexibility to define standards at the asset level if required. Flexibility is important, as there are likely to be situations where performance standards need to be defined at a generating unit/asset level to ensure a full understanding of the plant performance.

We do not agree with the AEMC that the current performance standards and system strength assessments cannot be applied to network-owned storage projects. While there may not be a requirement in the Rules, for every one of our projects, we work closely with the AEMO regarding setting and complying with performance standards. As such, no changes to the current arrangements are necessary or required.

Non-energy costs should be recovered on an equal basis from all participants

Energy storage should not pay for non-energy costs twice due to its bidirectional flow, and its current need to register under two separate market participant categories. As a priority, the Rules should be amended to ensure energy storage units only pay once for non-energy costs based on net metered energy (option 2 in the paper). This is in line with how other market participants are charged.

In the long-term, cost recovery should be restructured based on a causer pays principle.

Further guidance is required on DC coupled systems

More guidance is required on registration of DC coupled systems across the NEM. This is necessary to ensure a consistent approach and avoid registration and assessment delays, especially where total generation or storage may be far larger than the grid side inverter rating. Careful consideration needs to be given to understand both the technical assessment requirements and operational forecasting needs that are fit for future operating models.