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Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

By electronic lodgement

Integration of Energy Storage: Regulatory Implications

Origin Energy (Origin) welcomes this opportunity to respond to the Australian Energy Market Commission's (AEMC) Integration of Energy Storage Regulatory Implications Discussion Paper.

The purpose of the AEMC's Discussion Paper is to gain an understanding of whether the existing regulatory framework is sufficiently flexible to support the integration of storage technologies, or whether regulatory change is necessary.

We believe that the provision and operation of storage technologies falls into one of two distinct categories: services provided before the customer's meter (i.e. in the distribution network); and services provided behind the customer's meter (i.e. located in the customer's premises).

However, the current regulatory framework, including the National Electricity Rules, does not adequately make this differentiation, in large part due to the absence of a clear definition of where the distribution system ends.

Notwithstanding, Origin believes that the current framework is appropriate for storage technologies located in the distribution system and used for network purposes only (i.e. in front of the meter). However, there are deficiencies in identifying how idle capacity in storage assets located in a distribution system can be realised without compromising the integrity of the competitive retail market.

The availability of storage technologies to residential customers and small business on a commercial basis is relatively recent (i.e. behind the meter). The market is immature but is emerging through increased numbers of entrants and an expansion of products and services.

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Allowing monopoly network businesses, or their related parties, to operate beyond the distribution network will raise doubts with smaller operators whether they are able to compete on a fair and equal basis. This will erode confidence in new entry and ultimately decrease market efficiency and crowd out private investment.

For these reasons, we believe it is essential that policy makers appropriately make the distinction between the different service models and ensure that the necessary structures are in place to promote competition in storage technologies. This in turn will promote choice and innovation which will complement other key reforms such as competition in metering and network tariffs.

Origin's response to specific matters raised in the AEMC's Discussion paper is attached.

If you have any questions regarding this submission please contact Sean Greenup in the first instance on (07) 3867 0620.

Yours sincerely

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End users and aggregators using storage

Consultation Question

- Connection processes are new and still being implemented. Do you anticipate any issues with the connection process associated with storage?
- Do connection processes represent a barrier to storage? If so, what specifically is the issue?
- Should DNSPs be required to have a connection offering that separately addresses the connection of micro storage capability?

Origin understands that each jurisdiction, and in some instances each network, has separate technical requirements regarding the service and installation rules to connect to the distribution network.

In our experience, connection standards and processes are not only inconsistent across networks but they are also inconsistently applied. This includes timeframes for assessment of applications and meter change requests. As a result this creates difficulties in resolving differences on technical solutions and service requests.

We recognise that storage technologies are an evolving service. However, networks and technical regulators need to ensure standards and connection processes are developed that are consistent across networks and jurisdictions and remove ambiguity and inefficiencies.

Consultation Question

- Would a separate industry standard for the connection of small or micro storage assets to a distribution network be appropriate? If so, what should be included?

Origin supports harmonised standards across the National Electricity Market (NEM). We believe this can provide transparency and certainty regarding requirements and obligations on parties seeking connection to network.

Furthermore, transparent standards will remove the ability of networks to use connection requirements as a barrier to any competitor to a related party of the network. While not having a direct role in making standards, Origin would strongly welcome the AEMC's advocacy on this matter.

Consultation Question

- Do storage systems have characteristics, either individually or in aggregate, that mean regulation through the retail exemptions framework set out above is inappropriate for the relevant value stream? For example, there is no limit on the number or size of generating units a small generation aggregator can aggregate and so sell into the wholesale market. Does this present a concern?
- Aggregating parties would be required to register with AEMO if they intend to participate in the NEM. Will this provide any kind of barrier?

Origin supports the position that storage technologies should be exempt from retail authorisation conditions for the reason that the service will largely be used by the customer for self-consumption. We believe a key driver of storage technology will be to allow the customer to best manage their consumption decisions as part of broader reforms in metering and network tariffs.

In relation to aggregating parties, this clearly represents a departure from the customer using the technology for their own use and more accurately reflects a retail activity. As a result, we believe

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aggregators should be registered. This should not be a barrier as it is a requirement of all retailers/market customers. To not require registration would result in an uneven playing field for incumbent registrants.

Network businesses integrating storage

Consultation Question

- Do stakeholders agree that there may be tensions and ambiguities within the distribution service classification framework that would benefit from clarification?
- Do these issues relate in particular to the potential for development of competition in the provision of energy services from storage?
- How should network business-controlled storage on the network be regulated – as standard or alternative control, or other?

We believe the provision and operation of storage technologies fall into one of two distinct categories: services provided before the customer's meter (i.e. in the distribution network); and services provided behind the customer's meter (i.e. located in the customer's premises).

As a result, the regulatory classification of these services needs to adequately make this distinction. Otherwise, incorrect classification will have a material impact on the potential for development of competition in storage technologies at the residential and small business customer level.

The AER has recently defined a standard control service as 'services that are central to electricity supply and therefore relied on by most (if not all) customers such as building and maintaining the shared distribution network.'[1] Furthermore, the AER has also adopted the view that when a distribution network (or any other third party) installs an electrical asset within a customer's premises it considers that this will result in the customers' wiring becoming an embedded network, which the AER suggests is also a special type of distribution system.

The National Electricity Rules (NER) defines a distribution network as the apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) together with the connection assets associated with the distribution network, which is connected to another transmission or distribution system.

Connection assets are those components of a distribution system that provide entry (or exit) to the system at a single connection point.

Therefore, Origin interprets the NER to mean that any services provided beyond the customer's connection point do not meet the definition of a distribution service. That is, the distribution network ceases at the customer's connection point. Furthermore, we do not accept that each and every residential premises should be considered as an embedded network as suggested by the AER. Embedded networks have distinct characteristics, namely they have multiple occupants that do not have a direct connection to the distribution system, and for this reason are subject to various operating conditions, such as the AER's Exempt Selling Framework.

To provide certainty to storage technology providers, it is essential that ambiguities regarding key definitional measures are resolved as a matter of priority. These definitional issues will have a direct and material impact on how, or if, the market for storage technologies will evolve.

In terms of the regulatory treatment to apply to the two distinct services, we believe that where a storage asset located within the distribution system provides regulated network services (i.e. as an alternative to traditional investment) this should be treated as a Standard Control Service and

[1] AER, Framework and Approach for Energex and Ergon Energy 2015–2020, p. 10.

recovered through regulatory revenue allowances (either through the regulatory assets base or operating expenses).

However, we also recognise that such assets may also have value beyond their regulatory asset purpose, such as un-utilised capacity.

For this reason, we support the principle that the network businesses should be able to extract value form this capacity, as market participants and customers may ultimately benefit. However, extracting this value must come with strong conditions that are codified and applied in a transparent and consistent manner.

Foremost, when making capacity available the networks must be prevented from selling this capacity directly to customers; otherwise this would be akin to providing a retail function which effectively allows the networks to access commercial benefits realised by virtue of their role as a monopoly provider to the detriment of market development. To preserve the integrity of the competitive retail market, restrictions must remain on networks and their related parties providing electricity retail services.

The alternative to realising this value is for the networks to make this capacity available to registered retailers through a market based process. This would allow the networks to obtain an efficient price for the value of the service which in turn could be shared with network customers in a manner consistent with the relevant benefit sharing mechanisms provided by the regulatory framework and administered by the AER.

However, the regulatory treatment of storage technologies behind the customer's meter should be applied in a very different manner. As discussed previously, these assets and services occur beyond the distribution network and therefore cannot be considered as direct control service.

Furthermore, when ring-fencing provisions were originally established a key objective was the separation of the monopoly distribution function from contestable services. This was to ensure potentially contestable elements of the supply chain were able to compete on a fair and equal basis, thereby creating confidence in the integrity of the market.

This is particularly relevant for storage technologies. The provision of storage services to residential customers is a young and immature market. Allowing the market to mature and grow will result in increased competition which will create greater pressure on service providers to compete on levels of service, innovation and price. Ultimately, it will be the customer that benefits from a mature competitive market.

We believe a key driver for networks to be active in the behind the meter storage market is the preservation of their regulatory revenue streams, which is overwhelming. We do not believe this incentive is always in the best interests of customers. The motivation for storage technology providers on the other hand is to expand their market by providing more innovative and efficient products to allow customers to better manage their electricity consumption. As a consequence this could translate into lower delivery from the network which complicates their revenue recovery model.

Irrespective, consumer benefits and the efficient delivery of services should be the overarching objective of any market.

We are deeply concerned that the presence of monopoly networks or their related parties will stifle the development of competition in storage services. For these reasons, we believe restrictions need to be put in place preventing both networks and their related parties from involvement in storage technologies beyond the distribution system until such time that there is clear evidence of an established market.

Consultation Question

- Do stakeholders agree that the current rules applicable to networks are capable of integrating storage?
- Is the incentive framework for distribution and transmission businesses creating any barrier to the deployment of storage where it is cost effective to do so?
- Given the relatively unproven nature of battery storage should it be treated differently to other assets?
- Are any of the timelines associated with regulatory processes likely to be problematic? — For instance are the lead times in the planning process sufficiently long to capture the value of an incremental storage solution as a substitute for traditional network investment?

As previously raised, storage technologies exhibit a number of attributes that traditional network asset do not. Furthermore, their versatility allows for their placement both within and external to the distribution network.

We do not believe the current rules provide sufficient certainty to providers of storage technologies regarding how storage will be treated within and external to the distribution network and who and how these assets will be owned and operated.

These issues can be addressed through definitional changes to the NER coupled with a single ring-fencing framework that is applied consistently across the NEM. Origin's specific concerns are included in responses to other questions.

Consultation Question

- What will be required in the ring fencing guidelines to maximise the benefit of network use of storage?
- What will be required in the ring fencing guidelines to minimise a network business's ability to unduly impact a contestable market?

As discussed, when ring-fencing provisions were originally established a key objective was limiting the influence of vertically integrated incumbents on contestable elements of the supply chain.

One of the key attributes of ring-fencing is cross-ownership restrictions, especially between distribution and retail businesses. While we recognise that each jurisdiction has adopted different approaches to the restriction of cross-ownership, there needs to be a nationally consistent approach to ring-fencing, including the explicit recognition of ownership and operating conditions associated with storage technologies.

Origin is of the view that networks should be permitted to install storage technologies within the distribution network as a direct control service to the extent that it provides the most efficient response to a network investment need. However, where additional value form idle capacity is realised, this must be subject to strong conditions that preserve the integrity of the retail market.

We also believe that storage solution beyond the distribution system require stronger ring-fencing arrangements. We do not support distribution networks or their related parties providing storage technologies to customers beyond the distribution system until such time as there is a mature market for these services. In the interim we believe there is a strong case for ring-fencing provisions to include a restriction on ownership and operation of these activities to apply to networks and their related parties.

Ownership and Control

Consultation Question

- Are the connection requirements that are being imposed by different distribution businesses for consumer- or retailer-controlled storage being used as a barrier? If so, how?
- Does the ongoing degree of control that is being required by distribution businesses for consumer- or retailer-controlled storage represent a genuine safety, security or reliability need, or is it more appropriately a network interest that should be negotiated or signalled through prices?

We believe that behind the meter storage has the potential to complement other key reform measures such as contestability in metering services and network tariff reform.

One of the key objectives of network tariff reform is to signal to customers the costs of operating the network at times of greatest utilisation. As a result, this price signal is likely to reduce peak demand and therefore network investment, which will deliver lower networks costs to consumers over the long run.

Customers can respond to these price signals in a number of ways. At one end of the spectrum a customer can choose not to change their behaviour. At the other end some customers may adopt a portfolio of measures, including alternative energy supply options such as a solar and battery storage packages to provide them with the ability to minimise their exposure to network price signals. This is exactly what is intended by tariff reform: customers developing tools to allow them to most effectively manage their consumption.

This is best achieved when customers control their consumption decisions. We do not believe this would be possible if networks or their related parties controlled storage services behind the customer's meter as this has the potential to circumvent the effectiveness of price signals.

If networks, or their related parties, controlled storage devices behind the customer's meter this also has the potential to make it onerous and costly for third party providers to operate effectively in this market. To allow a level playing field which will deliver long-term benefits of a competitive market, monopoly networks should not have an ongoing degree of control over storage technologies beyond the customer's connection point.