Attachment A: Detailed Response

1. Energy Storage Register

Do stakeholders agree an energy storage register is needed in Australia?

Yes, on face value Endeavour Energy sees merit in establishing an energy storage register. However, it must be supported by a clear policy objective and cost-benefit assessment to ensure it achieves its full potential at least cost.

If the cost benefit analysis turns out to be favourable, it is plausible to conclude that an energy storage register will ultimately enhance the achievement of NEO by supporting the deployment of non-network solutions as least-cost options where appropriate.

It is also acknowledged that various stakeholders have different vested interests in establishing and maintaining an energy storage register. It is important that these are fully understood prior to its establishment to ensure the most constructive access arrangements are put in place that respect competitive neutrality and privacy principles.

As such, Endeavour Energy recommends that further work needs to be undertaken prior to implementing an energy storage register and deciding who its custodian will be. It is imperative that such work be undertaken by a credible, independent organisation that has a proven track record in developing energy policy. Endeavour Energy believes the AEMC is the most logical choice to undertake such a review given their experience and expertise.

Are there any other reasons energy storage data should be collected?

Yes. Endeavour Energy has the responsibility to ensure customers receive reliable, safe and cost effective electricity in a dynamic energy environment. Access to reliable and up to date data on installed distributed energy devices, including energy storage, would facilitate achieving Endeavour Energy's core objectives of maintaining network reliability, containing electricity costs and safety.

Network reliability

Endeavour Energy is a commercially successful, customer focussed electricity distribution business responsible for the safe and reliable supply of electricity to 951,801 customers or 2.3 million people in households and businesses across Sydney's Greater West, the Blue Mountains, Southern Highlands, Illawarra and the South Coast.

With an estimated asset value of $6.2 billion, our network spans 24,800 square kilometres and is made up of more than 432,500 power poles, 105,600 streetlight columns,185 major substations and 32,000 distribution substations connected by 47,000 kilometres (more than the distance from Sydney to London and back) of underground and overhead cables. We power the third largest economy in Australia, with the population of Greater Western Sydney forecast to grow approximately 46% by 2031.

Our network area includes the North West and South West priority growth areas of Sydney, established in 2005 to accommodate 500,000 new residents over 30 years. These priority growth areas are the result of the biggest coordinated land release in NSW's history.

We are preparing to meet this extra growth and maintain existing services by investing responsibly and efficiently in our network.

As seen by the uptake of roof top Solar Photovoltaics (PV), micro embedded generation can be installed in large numbers and could have both a positive and adverse effect on the network. While PV was partly driven by government policy in the initial stages, the uptake of PV continued on its growth path when eligibility for the solar bonus scheme ended and PV prices reduced. A similar situation could occur with battery storage which may result in a sharp increase in the take-up of this technology, fundamentally changing the makeup of the energy distribution network.

Should this take up occur, micro embedded generation data would be beneficial for the following reasons:

- More accurate estimation of After Diversity Maximum Demand (ADMD)[1];

[1] ADMD is defined as the peak demand allocated to each customer when trying to determine what the peak demand of an area will be when designing the capacity of the network. Even though individual customers might

- Determine the interim & ultimate network capacity for development areas; and
- Shifting demand peak times and its impact on network cyclic rating.

These factors relate to the design and capacity of network infrastructure and the staging of development. A better understanding of the impact on peak demand and how better to utilise the network has the potential to lead to deferral and avoidance of additional network infrastructure.

Forecasting energy use plays a key role in network planning. Knowledge of battery installation is important to determine penetration rates, capacity levels and subsequent impact on peak shifting and reduction and allows for a more accurate and reliable forecasting through the post model adjustment process.

Containing electricity costs

Further, the NER require DNSPs to investigate and utilise alternate technologies in its planning decisions to minimise future network spending. For example, the DMIS (once updated) will provide DNSPs with an incentive to undertake efficient expenditure on relevant non-network options relating to demand management. Whilst the RIT-D and DAPR will ensure DNSPs consider non-network options in a transparent and fair manner in developing expenditure plans. An energy storage register would provide important information to support these existing mechanisms designed to promote the consideration, and implementation of, non-network solutions.

Endeavour Energy has implemented Demand Management initiatives since the late 1990's, including residential Demand Management programs in the form of *Cool*Saver, *Peak*Saver and has trialled *Pool*Saver. A new trial is now proposing to use residential battery installation for demand response and peak lopping. Maintaining data of installed battery storage installation will allow:

- Knowledge of battery storage penetration in areas to design DM programs; and
- Knowledge of battery capacity installed.

Knowledge of battery storage installations will assist in developing more effective programs and defer expenditure for longer periods.

Safety

Knowledge of battery storage installation would be valuable to ensure network energy distribution disturbances can be investigated in a safe way by field workers. Such information would be valuable to understand the potential hazards the worker may face when undertaking their tasks, as well as determining the most effective solution to solve the problem.

For example, Endeavour Energy understands that a new business model is being developed where third party aggregator companies engage battery storage owners and sign them to a deal where the aggregator will utilise the battery capacity to access the market ancillary services via a retailer. Battery operation will be managed by the aggregator to enact bulk charging and export. This is likely to have an impact on the system operation.

This and other Power of Choice reforms will drive an ongoing reduction in DNSP participation beyond the connection point. Metering, and other behind the meter services, will be provided by third parties. However, DNSPs will often still be required to investigate outage incidents or potential National Energy Customer Framework (NECF) breaches. It will be important for both DNSPs and third party service providers to have access to up to date information about the type and functionality of any energy storage devices on site.

Given large-scale energy storage systems are now required to be registered as a Generator under NER, should a register be established for distributed energy storage (less than 5 MW generating capacity)?

Yes. Endeavour Energy sees merit in this proposal for the same reasons outlined above, subject to it being supported by an overarching policy objective and cost benefit analysis. Ideally, we consider the energy register should also be technology neutral. That is to say that all forms of embedded generation are captured in order to maximise forecasting accuracy and increase the reliance on non-network options to resolving network constraints.

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have very high peaks, on average, each customer will have a lower peak. It assumes that not all customers will peak at exactly the same time. Therefore, it diversifies each customer's peak demand.

Do stakeholders agree the Victorian Case Study is an effective framework for storage emergency response?

Yes. Endeavour Energy also supports the new safety Energy Storage Standards being developed by Standards Australia, including battery storage systems to display safety signage.

2. Data and access

Given the needs of AEMO, emergency response and other potential users, what is the "must have" data which should be collected? What are the likely costs of this data and do the impacts outweigh benefits?

As noted above, it is premature to determine specific data requirements until the scope, objective and funding arrangements of such a register are fully understood.

However, should a register be implemented Endeavour Energy agrees with the Consultation Paper's data collection suggestions of installation details and technical specifications, such as postcode, NMI, demand side participation contract, capacity (continuous kW and storage kWh), manufacturer, make, model number, and trip settings (frequency and voltage).

What is the "nice to have" data, and does the cost of this additional data collection merit its collection?

Should such a register be implemented Endeavour Energy is of the view that the following additional data (including information about other forms of embedded generation) would be beneficial to increase forecast accuracy and other operational and long term planning considerations:

- PV Panels: Number, type, orientation, tilt;
- PV inverter: Number, size, make and model – Note: the Clean Energy Council maintains a list of inverters compliant to AS4777; and
- Battery: Number, Type, kW peak and kWh.

How would data be collected and provided to a central register?

As noted above, it is premature to nominate a particular national body to store/collect the data, or establish access arrangements until the scope, objective and funding arrangements of such a register are fully understood.

However, should a register be implemented, we consider that the party installing the battery storage device should be responsible for providing the information. The installer is best placed to provide the kind of information required above at least cost and already do so in many jurisdictions through online forms.

It will be important that the party responsible for collecting and managing the central register has a relationship with the installers and can enforce compliance to ensure the information is provided.

Beyond AEMO and emergency response providers, what other parties should be able to access the data register and on what grounds? Are there particular conditions which should apply to these users?

As noted above, it is premature to nominate a particular national body to store/collect the data, or establish access arrangements until the scope, objective and funding arrangements of such a register are fully understood.

However, should a register be implemented DNSPs should freely have access to this data to undertake network planning, forecasting and connection. As noted above, making this information available to DNSPs for network forecasting and planning decisions will maximise the social value of the information

Is an industry-led register a feasible option? Who can lead this register?

As noted above, it is premature to provide input about who should lead the energy storage register. However, it is imperative that the organisation eventually given this task is independent, has experience with energy data collection to ensure it is managed effectively and access is provided to network planners, such as DNSPs, in a timely and cost effective manner.

Is a state-based energy storage register a feasible option?

Both industry led and state based energy storage registers would also be feasible options in addition to a national register. However, this may result in inconsistency in the kind of information collected between each DNSP or state registers and the approach.

Our preliminary view is that a single, national register would be the most efficient and effective option. However, depending on the practical limitations and/or cost benefit analysis we accept that these additional options may require further consideration. It may be the case that a national register is established with consistent, minimum information requirements that industry or state based bodies can feed the information they collect in to. However, as noted above our preference at this stage is for the information to be both collected and managed by a single, national body.

3. State and Territory Laws and Regulations

Are there opportunities to leverage data collection under other frameworks into a national register?

It is possible that an energy storage register could be achieved by expanding current jurisdictional data collection and storage practices in NSW. Briefly, an installer must seek Endeavour Energy approval via an online or paper form prior to connecting a new electricity generator to Endeavour Energy's network. This includes providing the installation address and retailer for micro installations (less than 5 Kw) and generation system details for larger systems. Post installation, the installer must lodge a Certificate of Compliance Work (CCEW) with NSW Fair Trading. The CCEW form requests basic storage information such as rating, number installed and particulars. This information is subsequently sent to the relevant DNSP after completion.

This process could be expanded to include additional information from the CCEW form and shared with both DNSPs and potentially another organisation managing a national register.