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RE: Energy Storage Registration Consultation Paper

Ausgrid welcomes the opportunity to provide comments in response to the Council of Australian Government (COAG) Energy Council consultation paper on Energy Storage Registration.

Ausgrid supports this initiative to establish an energy storage register as it is necessary to have this information to support emergency response and for the Distribution Network Service Provider (DNSP) to ensure safe and efficient integration with the network.

Ausgrid would note that the paper appears to primarily focus on the needs to collect this information from a national perspective in order to support Australian Energy Market Operator (AEMO) in performing its planning and security of supply role. Such a narrow focus may undermine the potential value from having a register given that other organisations such as electrical safety regulators and distribution networks would most likely have an equal or greater need to collect such information to fulfil their core responsibilities.

To maximise the value of establishing such a national register, Ausgrid advises the COAG Energy Council to:

- Leverage existing state based data capture and collection arrangements (through distribution businesses and/or electrical safety regulators) to supply a national register, as this provides the simplest solution for customers and will minimise costs and risks of duplication.
- Create a national standard to co-ordinate collection by the appropriate businesses within each state to ensure consistency.
- Ensure that sufficient incentive or compliance obligations exist to enable quality information to be supplied to the register.
- Recognise that the reasons for an energy storage register are also applicable to small scale embedded generation, especially given that many customers are likely to have combinations of both technologies.

Importantly, for the benefits of having an energy storage register to be fully captured it is essential for authorised market participants (including electricity distribution businesses) to have access to the information.

If you have any queries or wish to discuss this matter in further detail please contact Murray Chandler on (02) 92697210 or via email murray.chandler@ausgrid.com.au.

Yours sincerely,

A handwritten signature in black ink that reads "J. Hardwick".

John Hardwick
General Manager – Asset Management

ATTACHMENT 1 – Ausgrid’s detailed response

Section 2.1 Why a register is needed

Question. 1: Do stakeholders agree an energy storage register is needed in Australia?

Access to energy storage information by individual premise would be beneficial given the operation and safety risks associated with this technology.

It is important that the register is designed properly and appropriately balances the costs and benefits. Careful consideration should be given to the costs and benefits of setting up such a register, how it would work and the main organisations that require such a register and for what purposes.

In addition, there is a need to consider the purpose of an energy storage register given that other technologies installed at premises have similar considerations. The paper does not explain how energy storage systems are significantly different to other embedded generation systems such as solar, wind, gas or co-generation which all have similar power planning, operation, emergency response and safety and installation issues.

Therefore Ausgrid considers that the COAG Energy Council should consider whether there should be a distributed generation register (that includes energy storage) for systems less than 5MW. Alternatively, clearly define why energy storage systems are substantially different in nature to other distributed generation systems in terms of the reasons for data collection as outlined in the paper.

Question.2 Are there any other reasons energy storage data should be collected?

The three main high level reasons outlined in the paper appear to encompass the main reasons for collection of energy storage information.

Ausgrid notes that the paper appears to focus on the needs to collect this information from a national perspective. This could result in a missed opportunity if the register mechanism does not recognise the value of the information for either the local network or emergency response. We would argue that other organisations such as electrical safety regulators, emergency response and distribution networks would most likely have an equal or greater need to collect such information to fulfil their core responsibilities.

It will be the responsibility of the emergency response and distribution networks to take immediate action to address any safety issues regarding energy storage installation. However at the moment, there is no mechanism in place to indicate to a distribution network if a storage unit has been installed behind the meter. Yet, such information will be crucial when conducting network outages and the need to prevent any live electricity back-feeding into the system.

Below are some of the more specific reasons that distribution networks and/or electrical safety regulators would have the need to collect this information:

Power planning and operation

- DNSPs need to conduct work on the distribution network for maintenance reasons, which includes the need to isolate generation/ storage systems from back feeding so that this work can be performed safely.
- Approving connection applications for new and upgraded embedded generators (including energy storage systems). Information collected by DNSPs is used to assess the distribution network impacts on security, power quality, safety and reliability and to make customer connection offers as required under Chapter 5A of the National Electricity Rules (NER).
- Longer term network planning including assessing the impact of embedded generation on demand forecasting to plan capital works and network investment.

Emergency Response

- DNSP needing to isolate or work on the network in response to emergencies.

Safety and Industry Integrity

- Inspection of customer installation work for safety and compliance to relevant standards.
- Product recalls through appropriate electrical safety regulator.
- Risks posed to the safety of customer's device and other appliances when working on the network in a de-energised and short circuited state. If a DNSP is undergoing work on the network and the customer's storage device is back-feeding and does not have a suitable and working capability to detect an overload and isolate itself, this may trigger a short-circuit and pose a fire risk, or alternatively trigger a fault with other appliances in the household.

Question.3 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)?

Ausgrid supports in principle the collection of distributed energy storage information on installations less than 5 MW generation capacity. For the reasons outlined in our response to question 1, we consider that the COAG Energy Council should instead consider whether it should be a distributed generation register (that includes energy storage) for systems less than 5MW.

We also note that AEMO annually requests small scale embedded generation data from Ausgrid for their transmission connection point forecasts. Because we have historically collected small embedded generator information to fulfil several obligations, we have been able to provide this information to a level of accuracy useful for AEMO for these purposes. However, Ausgrid's ability to collect data and information on embedded generation and energy storage in the future will be affected by recent reforms at the state and national level:

- Historically, NSW DNSPs have an obligation for running an installation inspection and audit program for electrical installation work on the customer's installation and collecting information submitted via the NSW Certificate of Compliance Electrical Work (CCEW) forms from electricians. This responsibility is currently being transitioned to the NSW Government – NSW Fair Trading.
- During the NSW Solar Bonus Scheme, NSW DNSPs were required to make Feed-in tariff payments to eligible customers based on system size and application / connection date, and this data needed to be collected to determine eligibility. This scheme ends on 31 December 2016 therefore removing the incentive for customers to provide this information to the DNSP.
- Metering for all small retail customers under 160MWh has historically been the responsibility of DNSPs including the provision of bi-directional metering for embedded generation sites. This will be changing from 1 December 2017 to competitive metering providers with the introduction of metering contestability.

Question.4: Do stakeholders agree the Victorian Case Study is an effective framework for storage emergency response?

There are numerous procedural elements that would need to be considered to understand how best to efficiently serve the emergency response process for multiple providers. We recommend that further investigation be undertaken within each jurisdiction to better understand how this could best be applied.

2.2 Data and access

Question.5: 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?

The data we currently collect about embedded generation systems through the connection applicant is the type of generation system (solar, battery, other), inverter size(s), generator capacity, system manufacturer and model number. We also collect information about whether the inverter(s) are compliant to AS4777 and are on the Clean Energy Council approved product list.

These details are collected for all new and existing / upgraded generation systems through specific Connection Application forms for embedded generators, with a different form depending on the size of the generator (greater than 30kW). From the perspective of assessing the network impacts from embedded generation and approving connections of embedded generation systems (including energy storage) to our network, we would consider this data to be “must have”.

These generator details (including energy storage) are collected at a National Meter Identifier (NMI) or premise address level so can therefore be matched to other market data or NMI standing data. For example, if customer contact details are required for this address there are existing market processes (AEMO’s B2B Procedure for Customer and Site Details Notification Process) in place where electricity retailers transfer essential customer details (name and contact number) to distribution businesses to perform their core responsibilities.

The likely costs of additional data capture are therefore marginal; however they will increase with volume of embedded generation or storage.

Question.6: What is the “nice to have” data, and does the cost of this additional data collection merit its collection?

Our historical and current practice of inspecting electrical installation work includes embedded generators and energy storage systems. For this purpose, the type of chemistry (Lead Acid, Lithium Ion) would be considered useful information as it would assist in inspections against relevant standards that might be specific to battery chemistry. However, appropriate labelling of battery chemistry that is visible at the meter-board or other suitable location might also fulfil this need.

Further data that might be considered “nice to have” from a network operator perspective and assist with a DNSPs network planning and operation responsibilities would be:

- Battery capacity (kWh)
- Export limiting capability
- Demand Response capability to the AS4755 standard
- Trip settings, such as voltage and frequency
- Islanding or standalone functionality (as these systems may be at a higher risk of back-feeding)

We would also note, that in March 2015, the AEMC made a change to the National Electricity Rules that will require electricity market participants to provide Demand Side Participation (DSP) information to AEMO on an annual basis to assist with AEMOs load forecasting process. AEMO started the consultation process on developing the guidelines under this new rule in September 2016 with final guidelines planned to be published in April 2017. These DSP guidelines will also require market participants to provide information about battery storage devices and controlled load or demand response contract arrangements.

The cost of collecting and maintaining additional information needs careful consideration. One approach may be to only collect more detailed information for energy storage systems above a certain size (eg. for generators >30kW, >100kW or >1MW).

Question.7: How would data be collected and provided to a central register?

Ausgrid believes that where possible existing data collection processes and requirements should be leveraged for information to be provided into a central register.

We believe a state-based collection process through either the distribution businesses or electrical safety regulator would appear to be the most efficient process overall, and this information could be provided to a central register following a nationally consistent data specification. The relevant collection organisation may differ from state to state and the details of the data collection process or mechanism may also vary.

Ausgrid collects information about embedded generators (including energy storage systems) through its connection application forms as outlined in Question 5. This is one possible mechanism for collecting energy storage information and providing it to a central register.

Furthermore, in NSW, when work on the customers electrical installation is completed by a certified electrician, a Certificate of Compliance of Electrical Works (CCEW) is submitted by the electrician to the customer, the appropriate electrical safety regulator and NSW DNSPs for specific circumstances. In NSW the electrical safety regulator for the customers' electrical installation is NSW Fair Trading. The responsibility of installation inspections is being transitioned from the NSW DNSPs to the NSW Fair Trading.

The current CCEW forms are generic and cover all types of electrical work. However, if amended, the CCEW could potentially be an efficient way of collecting energy storage system information or linking back to the original Connection Application information that the distribution businesses collect.

The exact method of providing this information to a central register would need to be coordinated, between each state based organisation(s) and the appropriate national body.

Question. 8: What arrangements and requirements should be put in place to ensure data is collected and supplied in a timely manner?

Installers of energy storage systems (mainly certified electricians/ accredited CEC installers) would need to be made aware of their obligations to submit the required information via the appropriate processes, and a compliance regime would need to be followed by the governing organisation. In NSW, the NSW Fair Trading has existing powers to compel compliance to the reporting requirements for electrical installation work.

The organisation(s) collecting, transferring or storing the information would need to ensure that the data collection processes, systems and databases are in place prior to introduction of the obligation. Standard data transfer processes to other relevant organisations would also be required.

In some instances, installation of energy storage systems do not require a new or upgraded inverter to be installed, and may only require wiring from a battery to a previously installed and approved, "battery ready" inverter system (installed with a solar system). These systems may only require retrofitting a 48 volt DC battery system, which is electrical work not currently required to be done by a certified electrician in NSW. In these situations, compliance to reporting obligations for installation of energy storage systems may become more difficult.

Question.9: Could a national register be linked to other databases e.g. data collected by distribution businesses? Are there other databases which should be considered?

It is possible that data collected at the state level or by DNSPs could be linked to a national register, however, a standardised transfer process and data specification would be required. If DNSPs were to utilise their existing data bases, this could be more easily supplied through B2B processes and procedures which are heavily industry led through the Information Exchange Committee (IEC).

Question.10: 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?

Distribution businesses must be able to access information in the national register for the purposes of efficient electricity network planning and operation, emergency response and safety issues.

For organisations that don't require site-specific information to perform their core responsibilities, aggregated information could be made publicly available. See for example, the Clean Energy Regulator which publicly releases solar information that it collects for the SRES scheme by postcode. This could then be used by industry bodies (eg. Clean Energy Council, Australian Energy Storage Alliance), policy makers and research institutions.

2.3 How the register should be set up

2.3.1 A register led by a national body

Question.11: Do stakeholders agree with setting up a register led by a national body? Are there any other key benefits or concerns that the Energy Council should be aware of for this approach?

Ausgrid considers that role of any national body should be to leverage existing state based data collection arrangements. This prevents the additional costs associated with the administration involved in having the customer, or installer, required to submit two sets of information. One key concern would be not to duplicate data collection processes or create the need for additional information collection forms and processes that are similar to ones already in place. Any duplication is likely to diminish the focus on data accuracy at collection.

Therefore we would see a role for a national body in leading and coordinating the setup of a central register. This national body would be able to setup a national standard and define the data specifications and transfer processes, which would then inform the state based arrangements. It would also be able to coordinate the collection of data by the various state based organisation(s) into a central register that could be accessed by other key stakeholders in an aggregated or summarised format.

Question.12: Can CER, AEMO or a new register be a feasible option? If yes, how can the barriers or challenges discussed be overcome?

Each of these options (including DNSP and jurisdiction based Safety regulator collection for a national register) is feasible.

Ausgrid notes that in the paper, there is mention of the Clean Energy Regulator and their current obligation to collect solar system information under the Renewable Energy Target scheme. We note that the financial incentive associated with generating Renewable Energy Certificates under this scheme is a strong incentive for customers to submit information about their renewable energy generation system. This is done through a separate process which is independent of the reasons outlined in the paper for collecting this information, eg. power planning and operation, emergency response and safety and industry issues.

Similarly, a register managed by AEMO and associated with B2B processes would be feasible and inherently more accurate if related to a Retailer or Network product and subsequent billing.

The COAG Energy Council needs to carefully consider how to achieve compliance of providing energy storage information given the absence of any financial incentive.

Question.13: Are there other organisations suitable to host a national energy storage register?

The Department of Industry, Innovation and Science might also be a suitable host for a national embedded generation (including energy storage) register, given their existing relationships with the State Departments. However, consideration of how this information will be then fed back to authorised parties wishing to use the information must be considered.

Question.14: What are stakeholders' views on maintaining information on distributed solar after the scheduled decline in SRES incentives for solar installations from 2017?

Ausgrid uses the publicly available CER postcode data as a cross-check against its own collected solar data, and therefore shares the concerns regarding the potential decline in data quality and coverage, when the financial incentives decline.

Without a strong financial incentive or legislative requirement to submit solar information through an appropriate process, customers are likely to be less inclined to submit their information, and there may need to be suitable enforcement arrangements. As such enforcement arrangements are likely to be established at the state level, this supports our recommendation of collecting energy storage information through state based obligations.

2.3.2 A register led by an industry body

Question.15: Is an industry-led register a feasible option? Who can lead this register?

Ausgrid agrees with the reasons presented in the paper as to why an industry-led register is not a feasible option.

However, industry bodies and their members (such as the CEC, Electricity Network Association or AESA) are important key stakeholders and users of the information. Such bodies would provide valuable input into the design questions as to what should be collected and for what purpose.

Question.16: Are there examples of industry-led initiatives or industry operated schemes that are underpinned by a regulatory framework / minimum regulatory requirements?

Ausgrid is not aware of any suitable examples.

Question.17: What are the other benefits and challenges of an industry-led approach?

An industry led approach can often fragment when participants are a mix of competitive entities and monopoly service providers. This can often led to inefficient behaviour.

2.3.3 State-based register

Question.17: Is a state-based energy storage register a feasible option?

Our recommended approach is state-based collection of information to a national standard. The information collected in these state-based data registers would then be transferred to a national register hosted and managed by the appropriate organisation.

State based collection of information would leverage existing processes and recognises that some of the information collected may only be valuable to state based organisations, including safety regulators, emergency response and DNSPs. The most appropriate state-based organisations appear to be either distribution businesses or electrical safety regulators.

A national organisation should act in a coordinating role, hosting a central register and developing a nationally consistent data specification and data transfer processes. This would mitigate the concerns expressed in the paper about issues of inconsistency in data collection and system management from state-based energy storage registers. For example, AEMO could host this central register with information associated with NMI standing data.

Question.18: Are there other organisations (apart from electrical safety regulators) that can host this register?

We recognise the view expressed in the paper that the collection of certain information does not necessarily align with an electrical safety regulators core responsibilities. One of the challenges with setting up a register will be that no single organisation will necessarily require all the information for all the reasons specified in the paper.

Distribution businesses already have the need to collect most of the information outlined in the paper to perform their responsibilities. However, there is currently no legal obligation to collect some of this information that has been highlighted in the paper.

Apart from electrical safety regulators, another potential organisation might be the appropriate state government departments responsible for the energy portfolio or state regulatory bodies for distribution network businesses. In NSW, these would be the NSW Department of Industry and NSW IPART.

3. Other registration requirements

Question.19: Are there opportunities to leverage data collection under other frameworks into a national register?

Yes, we believe there are opportunities to leverage data collected under existing frameworks into a national register.

For large battery systems (>5MW) the data collected by AEMO for generators (and storage systems) could be leveraged.

For systems under 5MW the two main existing data collection frameworks that we believe are relevant are both collected by state-based organisations.

1. The connection application processes as established under Chapter 5A of the NER are an existing requirement for distribution businesses. These processes require DNSPs to collect relevant information about embedded generators (including energy storage systems) applying to connect to the network. The main purpose of collecting this information is to be able to assess the network impacts of proposed embedded generators, so that approval and connection offers can be made to customers. Inverter system details is the main information collected and used for this process, but other embedded generation information is also collected.
2. In the NSW context, submission of Certificate of Compliance Electrical Work (CCEW) forms by electricians for electrical work to a customer's installation (State-based electrical safety regulator). The submission of the CCEW may assist in identifying the installation date of an embedded generator, however, the current CCEW forms are quite generic and do not record specific details about the embedded generation system.

Collection of data through the distribution connection application process could be the most efficient and robust form of data collection. This data could then be transferred into a central/ national register run by a national body, say AEMO. However legislative changes would be needed to enable DNSPs to do this role.

Question.20: Should relevant jurisdictional licensing frameworks be reviewed and amended to require registration of energy storage devices? Are there other alternatives?

The revision of jurisdictional frameworks to require registration would be beneficial in lieu of a financial incentive from a Retailer or other product offering.

Question.21: It is understood that off-grid distributed generation, including energy storage, is not currently captured under both national and state/territory registration frameworks. Should consideration be given to registration of off-grid storage systems for emergency purposes or other uses?

Off-grid and micro grid arrangements would benefit from a large number of similar benefits that would come from a national register of grid-connected systems. This includes, but is not limited to enabling more efficient application of customer protections.