

Energy Storage Registration

ECA submission to EMTPT Consultation Paper



Energy
Consumers
Australia



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Introduction

Energy Consumers Australia (ECA) welcomes the opportunity to respond to the Energy Market Transformation Project Team *Energy Storage Registration: Consultation Paper* (the **Consultation Paper**).

ECA is tasked with providing and enabling advocacy on matters of national significance to residential and small business consumers to support the overall market objective to promote the long term interests of consumers with respect to price, quality, safety, reliability and security of supply.

The price energy consumers pay depends on many factors. This includes the specific requirements imposed on the electricity system to achieve safety, reliability and security. How the system is designed is in part determined by the standards chosen for these three dimensions. However, within the chosen standards there are still options on details that can have significant impacts on the long term cost of energy services, and hence prices to consumers.

As the title of the Project Team makes clear there are many changes taking place in the Australian energy market – changes that we expect to be an ongoing and permanent feature of the energy market for the next two decades that will require policy and regulatory adjustments along the way.

In an environment of change one of the most useful policy tools is data. This is recognised in the Energy Council's *National Energy Productivity Plan* as Measure Number 24:

Improve the exchange of market data

Barriers currently exist in energy market data systems to the integration of new products and services and effective competition. Systems need to be flexible enough to adapt. Data exchange mechanisms need to facilitate the development of innovative services which support competition and inform consumer decision making at the point of purchase, based on real-time access to their energy use profiles. The Council will engage with market institutions during 2016 to understand whether barriers exist to this occurring.

Data capture is the first step in any meaningful approach to improving the exchange of data.

Energy storage technologies will play a significant part in the evolving energy system. Consumers interests in obtaining the benefits of retail competition will be advanced by the recognition that there is only one market; the market for energy services. Whether the consumer chooses grid-delivered or self-supplied energy (or a combination of the two) is just part of how they choose to obtain the energy they need.

There is, therefore, a compelling case to develop a national approach to energy storage registration, although there are important details about how the register will be implemented that will need to be settled. We identify a number of these issues in this submission.

A key question is about the types of storage that should be covered by any registration scheme. ECA favours a definition that identifies that the devices are both loads and sources of electrical energy under single control. That is, they are more than just generators (though ECA also believes generators should be subject to the same registration requirement) and they do not include heat storage devices (e.g. hot water heaters).

The scope of what needs to be registered also needs to be considered. Information on the whole storage system rather than just the storage device is required to assist with power system planning.

It is also critical that the information recorded in the register is managed according to privacy rules to ensure consumers can have the utmost confidence that their data will be protected in accordance with law.

The Purpose of a Register

The Consultation Paper provides three reasons for obtaining and making available storage data:

1. Power System Planning and Operation
2. Emergency Response
3. Safety and Industry Integrity

ECA agrees with each of these reasons. ECA notes that the achievement of all three purposes by one register is an efficient use of resources, however as identified below each purpose requires different information to be captured.

The issue is what we can learn about the appropriate register design from these reasons.

AEMO's requirements for information on storage systems for power system planning and operation are valid. However, the extent to which the of distributed resources will be of any greater use to AEMO than either information gleaned from changing system load profiles, user profiles or general take-up profiles is easy to over-estimate.

AEMO is not the only potential user though. Businesses throughout the supply chain could utilise the data in planning, including identifying areas where there is low storage deployment creating opportunities for community level solutions and where high levels of deployment which may require attention to maintain power quality, safety and reliability.

It is very hard to quantify these benefits, however, there only needs to be a relatively minor benefit in terms of optimizing system wide costs to justify the allocation of funds to a register.

However, a critical issue is whether battery information alone is sufficient to assist power system planning and operation. Operational data such as voltage and frequency trip settings reside in the associated inverter and not in the battery itself.

Consequently, maximum use of the register for power system planning and operation would come from managing it as a complete resource of distributed energy resources including generation (PV), storage, inverters and any demand response facilities.

Not all storage systems create an issue for emergency response, however, as most distributed resources are likely to utilise chemical rather than physical storage techniques, most may. As has become highlighted with recent smart phone product recalls, there are fire risks associated with silicon ion technology - risks which emergency authorities are still developing protocols to manage.

Signage and standards are appropriate measures for emergency response, but a centrally available resource that provides details captured at installation is also needed to enable emergency response.

Related to the emergency response issue is the safety issue of product recall. Once again the smart phone case demonstrates the risk from faulty battery componentry. Recall in the phone case is relatively simple because all devices self-register on mobile carrier networks when used (their IEMI number is captured by the network).

The case of a recent washing machine recall presents a different outcome. As at March 2016 only 74 percent of 144,451 machines, first recalled in 2013, with a major waterproofing fault have been remedied.¹

The database is probably less valuable in its use to identify any wiring and setting information that could change subsequent to installation. Tradesmen working on systems post installation are best protected by a thorough inspection on-site.

The register is not a complete battery product stewardship system that starts at manufacture or importation. It should not seek to provide product stewardship functionality to trace batteries post removal, though the register will need to be updated at system removal. This action could be used as a transaction to notify a separate disposal system that the battery is now in the waste/resource reuse chain.

Response to Consultation questions

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

Yes

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

ECA is not aware of any, though the reasons as outlined in the paper could be modified as discussed above.

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. However, ECA suggests that all chemical storage devices (including those above 5 MW) should be included in the register.

¹ See <http://www.smh.com.au/business/retail/samsung-overhauls-washing-machine-recall-as-it-faces-potential-coronial-inquiry-20160322-gno4gu.html>

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

In part. The means by which emergency services access storage data **should not be** by providing a copy of the register to emergency services and updating on a regular basis. The emergency services functionality should be provided by way of a B2B query of the single register by the emergency services. This will be a cheaper and more accurate implementation.

Data and Access

The data to be captured in the system for each installation needs to be everything that is unique to the installation, but nothing that can be derived from other data. This needs to be matched in the register with an additional file that contains the full details of the device from its make, model and serial numbers. Apart from means to identify the location of the premises (e.g. NMI) only the make, model number, serial number and date of installation should be required. The last two will assist in identifying devices that might be part of a product recall.

The storage register should not be the repository of real-time data. Amongst other things it is more likely that the real time data will be more useful at the premises and the aggregate data of generation and storage in real time is of more use for system purposes.

The data should also recognize that it is entirely possible to include pictorial files. This can include a sketch map of the site showing the location of the storage device and a photograph of the actual installation. This functionality is relatively easy to use from a smartphone, and indeed a simple phone based app could be developed for installers to submit installation data.

This functionality will allow emergency services to understand where the risks on the property are located and assist in determining the appropriate response.

For emergency response a query on an address should provide both the details of the installation and the additional information held in the 'product' file which would identify chemistry.

Response to Consultation questions

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 make, model, serial number and installation date for devices that are separately registered as available devices against a suitable location identification, together with a photo of the installation and sketch map of the site showing the installation. A simple phone based app to be used by installers would be the best capture mechanism. Installer businesses could even pre-enter the device details when issuing the work order to an installer.

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

Most of the other useful parameters (trip settings, grid support capability) are parameters of the inverter rather than the storage device. These are all useful to capture especially as we try to model the system security risks and opportunities from DER.

This is “nice to have” data only in so far as it is not also required for emergency response purposes. Whether they are included or not becomes a definitional issue if we are registering storage devices or storage systems.

ECA believes the benefits do outweigh the costs.

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

As discussed above installer smartphones are the best data capture devices. Communications can be supported by the peer-to-peer functionality being designed for the new AEMO B2B platform.

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

Simply a requirement on installers to do so, with appropriate enforcement mechanisms (like any other feature of mandated safety requirements).

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

Use of a centralised database with query functions established through the B2B platform enables development of it for purpose “connections.” DNSPs are likely to want to maintain their own local record for localized network operation.

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?

Access should be available to anyone who can demonstrate a reasonable application within the three purposes of the register above, with an express provision that the data is not to be used for targeted marketing purposes.

Register Set-Up

The criteria for establishing a register are that:

- it should be a national body to reduce costs and facilitate compliance, and
- it should be set up within an existing body with the skills and resources to manage it.

As noted previously there is an efficiency in having one register, though the information requirements for each purpose are different. ECA favours AEMO as the system operator because it will make most frequent utilization of the data, has the experience to manage a large data set and has experience with transactional (B2B) systems to support system operation.

Response to Consultation questions

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?

Yes

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

AEMO is the logical choice. There is a degree of industry distrust of AEMO, especially since it is a grid centric organization. Placement with AEMO (and migration of the CER database) will help effect culture change.

The CER is not the logical choice if the system is providing power system planning functions. Indeed the CER register could well be merged into a single DER register. Operated by AEMO.

Are there other organisations suitable to host a national energy storage register?

There are possibly other organisations such as the Clean Energy Council. ECA tends to prefer an organization whose existence and operation is in part governed by legislation. The CEC currently only manages an approved panels and inverter lists , not a register of installations.

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

As above the storage register should be extended to include most DER resources (generators, storage, inverters and large loads under demand response control) on the principle of value to system operation and security.

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

Not for this register in this industry.

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

Yes. One example is the INMS (Industry Number Management Services) company operated by the telecommunications industry to manage the 1800 and 1300 number ranges.

However that industry has significant structural advantages over the electricity industry, in particular a framework of self-regulation through standards and codes. It should not be considered as a model for immediate application.

What are the other benefits and challenges of an industry-led approach?

The most significant challenge is asking which industry. The benefits of the register are shared between the grid delivered electricity operators and the reputation (safety) of distributed energy sellers.

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

No – this register needs to be national. The duplication of registers at a jurisdictional level will increase costs and make it more difficult for businesses that retail and install storage products to operate nationally. A single national register would also be much better for consumers who move between jurisdictions.

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

Not that we are aware of.

Other Registration Requirements

ECA is of the view that there shouldn't be a "link" between the data sets for very large storage installations. These systems (greater than 5 MW) should simply be entered in both systems.

The requirement for storage equipment as a generator to be notified to the distribution company includes system considerations beyond just worker safety. These requirements should continue, but not used to leverage to create the new storage register nor considered a functional alternative to the new register.

The ongoing evolution of a national register would be the point at which state regulators and DNSPs were able to rely on the national register.

Response to Consultation Questions

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

Not that we are aware of.

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

Only to the extent that such requirements cannot be enforced through the harmonized legislation.

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?




Yes. We believe consideration should be given to extending registration to off-grid situations in relation to safety and future planning issues.



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