



COAG Energy Council Secretariat
GPO Box 9839
Canberra ACT 2601

Lodged via email to
energycouncil@industry.gov.au

Tuesday, 20 September 2016

Dear Secretariat,

RE: Energy Storage Registration Consultation Paper

ENGIE appreciates the opportunity to comment on the Council of Australian Governments Energy Council (COAG Energy Council) energy storage registration consultation paper (consultation paper).

ENGIE is a global energy operator in the businesses of electricity, natural gas and energy services. ENGIE is the number one independent power producer in the world with 115.3 GW of installed power-production capacity, 19 GW of which is renewable. ENGIE employs 1,800 people in Australia and supplies 12 per cent of Australia's National Electricity Market, and has an installed generating capacity of more than 3,550 MW. ENGIE also owns Simply Energy which provides electricity and gas to more than 550,000 retail customer accounts across Victoria, South Australia, New South Wales and Queensland.

ENGIE is generally supportive of efficient initiatives that improve the understanding of distributed energy resources (DER) and how they interact with various factors such as the wholesale market, network parameters, weather, retail prices, and so forth. Indeed, AEMO have identified DER information as an important issue in their recent Future Power System Security report¹.

ENGIE is concerned however, that a laborious pursuit of increasingly detailed information is likely to lead to inefficient and ineffective processes being imposed on industry, resulting in increased cost and complexity for no net benefit. In summary, ENGIE is of the view that the proposed national register of

¹ AEMO report at <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/FPSSP-Reports-and-Analysis>

Australia

Level 33, Rialto South Tower,
525 Collins Street Melbourne, Victoria 3000, Australia
Tel. +61 (0)3 9617 8400 Fax +61 (0)3 9617 8401 engie.com.au

INTERNATIONAL POWER (AUSTRALIA) PTY LTD ABN 59 092 560 793
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storage devices will be extremely difficult to implement and maintain in an effective manner, will impose unnecessary costs and complexity and is unlikely to deliver the intended benefits. ENGIE has included in this submission what it believes to be a more practical and effective approach.

The problem to be solved has not been adequately defined:

The consultation paper makes the point that there is “*currently no sufficient mechanism to register energy storage devices with relevant authorities*”. This statement pre-supposes a problem and leaps straight to a solution - an energy storage register.

ENGIE believes that before any specific proposal is put forward or considered in detail, it is vital that a clear understanding of the issue or problem is first established. Until the specific problem is clearly defined and understood, it is very difficult to gauge the adequacy or otherwise of any proposed solution.

The consultation paper does note that the Energy Market Transformation Project Team (EMTPT) has come to the conclusion that an energy storage register may be necessary to ensure adequate power system planning and operation, emergency response, and safety and industry integrity. ENGIE agrees that these are all important elements of the energy sector, but does not believe that the EMTPT has adequately set out the specifics of the issues that it believes are arising. To reinforce this point, ENGIE has provided some specific comments alongside each of the subheadings below:

Power System Planning and Operation

The consultation paper notes that the characteristics of loads are changing, but does not suggest that all load details should be included in the register. It is not clear in the consultation paper why load characteristic changes due to battery storage should be singled out for special treatment.

The consultation paper notes in section 2.1 that AEMO require a certain level of data about DER, including storage – but it is left unclear why the consultation paper then focuses on battery storage, and not the other forms of DER.

Emergency Response

The consultation paper notes that lithium Ion batteries pose new risks and that emergency services currently have “*limited knowledge as to appropriate methods and procedures that they should follow in the event of an incident*”. Given that the risks are still being assessed, it seems premature to jump to a heavy handed regulatory response such as trying to capture every installation in a central register

The expected proliferation of battery devices in households into the future, including electric vehicles, is likely to lead to a situation where emergency services ultimately would be better off



assuming that all households contain lithium-ion devices, rather than rely on a register that is unlikely to be completely accurate in any case.

Safety and Industry Integrity

The consultation paper highlights a potential safety risk to installers that are required to modify or decommission older battery storage systems. The concern, as ENGIE understands it, is that technicians need to be able to identify the technical and safety specifications of each device that they are required to work on.

The Clean Energy Council have a proposal to establish a live database tracking system for all storage installations, modifications and removals. The system would include information about the installations technology, identification numbers, circuit info and installation details.

ENGIE believes that this proposal is not proportionate to the identified problem, and is unlikely to be successful in any case. The technical and safety specifications for various battery storage devices would be static data that could be accessed by technicians by reference to the device make and model and the original equipment manufacturer.

ENGIE expects that as these DER devices are developed further, many future installations are likely to be “plug and play”, and so reliance on installers filling in central registers of information will not be successful.

Nature and extent of the data

According to the consultation paper, AEMO have indicated that it is “*highly necessary*” that they have access to data on installation details and technical specifications, such as postcode, National Meter Identifier (NMI), demand side participation contract, capacity (continuous kW and storage kWh), manufacturer, make, model number, and trip settings (frequency and voltage). Real-time output of peak power and the total stored energy available in batteries is described by AEMO as desirable but not critical.

This level of detail seems excessive and ENGIE finds it difficult to understand why AEMO would require such detailed information for its planning and operational functions, especially down to the installation level. ENGIE would expect that if AEMO need access to any information, it would only require access to aggregated data at relevant nodes in the transmission network.

The consultation paper does not set out why AEMO would require detailed information such as make, model and manufacturer for their planning and operational functions. If AEMO need any additional data, then ENGIE suggests that it would be limited to:



- General understanding of the response to frequency and voltage disturbances. AEMO would not need to have explicit knowledge of every installation, but should have a general understanding of how many (on average) might respond to various frequency and voltage thresholds. Such information could be based on sales figures and surveys, and does not require intimate knowledge of every installation. AEMO could also use detailed monitoring of demand response at connection points to gain insight into the aggregate response of all embedded devices at that point.
- General understanding of the capacity of storage devices within each region. Again, this could be based on sales figures, supplemented by AEMO assessment of their real time demand measurements.

ENGIE suggests that the following items are not needed by AEMO:

- Postcode and NMI. This detail is not important to AEMO as they are not required to manage security at this level. Even distribution networks should be able to manage their local networks based on real time observation of network flows, and their forecasts (based on historical observation and knowledge of sales figures etc).
- Demand side participation contract information at the household level should not be required by AEMO (or local networks). There are already processes being established by AEMO for retailers and demand aggregators to inform AEMO of the aggregate impact of demand side participation arrangements. It should therefore not be necessary to impose a further burden of gathering and storing detailed information about individual installations (unless they are greater than 5 MW).
- Capacity (in kW) and storage (kWh) is not directly important to AEMO. AEMO would be concerned with the aggregate impact of these devices on electricity supply/demand at key nodes on the transmission system. The manner in which these individual devices are used by customers into the future are likely to be mixed and varied – some being responsive to pool price, others responding to local network management, others more driven by individual consumer's objectives. The point is, trying to gain insight into the overall impact through a bottom-up data collection process will be complex, costly and unsuccessful.
- Manufacturer, make and model are irrelevant to AEMO and networks – this seems a draconian step that is not necessary and would be an expensive and unnecessary burden.

As a comparison to the emerging battery storage question, it is useful to reflect on the rapid take up of household air conditioners which has roughly doubled since the late 1990s when they became more effective and affordable. This sudden take up of air conditioners had a dramatic aggregate impact on the peak demand for electricity with serious implications for both AEMO and the networks. However, it was



not deemed necessary to establish a database of each household's air conditioner details. For example, customers were not asked to identify at what temperature they would turn their air conditioner units on or off; nor were they asked about the make, model or capacity of their cooling units.

AEMO and the networks were able to gain sufficient insight into the actual and potential impact of the growth in air conditioners through keeping abreast of sales figures and monitoring and analysing real time measurements. This was sufficient for air conditioners, and should be sufficient for battery storage and other DER's.

Impracticality of a central register

In addition to the reasons outlined above as to why a central register is unnecessary and likely to be ineffective, ENGIE also suggests that there are a number of practical difficulties that will make the proposal difficult to implement effectively.

Firstly, there is no party that is well placed to collect and maintain the relevant information. Retailers have a customer relationship, but this relationship can be dynamic due to customer churn, which makes it difficult for a retailer to be confident that it has a complete understanding of its customer's DER installations. In addition, many DER customer installations are likely to be carried out independent to the customer – retailer relationship. In fact, many customers are likely to be incentivised to install DER devices in an attempt to reduce their reliance on electricity retailers – so asking such customers to advise their retailer of such action is likely to be problematic.

Network businesses are not well placed to collect information from consumers about their installation of storage devices since networks do not currently have a business relationship with households, other than owning, and in some cases, reading their electricity meter. Although networks may obtain certain information from electrical contractors about installations at present, in the future it is possible that many DER facilities will not require installation by electrical contractors.

Industry registries are unlikely to provide the data consistency and integrity that would be needed if a national database were to be of any practical use. State based registers would also be difficult to achieve with any reasonable level of consistency and integrity.

If a register is to be set up, then ENGIE believes that a national body would be preferable to ensure consistency across jurisdictions. ENGIE would not support AEMO being given this responsibility as it is a clear departure from their core functions, and may create a conflict of interest if AEMO were the main user of the data as well as the data collector and keeper.

ENGIE suggests that the Clean Energy Regulator would seem to be the most suitable national agency with relevant system and resource capability for such a task.



Alternative approach

ENGIE agrees that there is a general need to ensure adequate management of the connection of DER devices, and to also ensure that the power system (including networks) are able to continue to operate effectively.

In terms of ensuring the continued effective operation of the power system and the networks, ENGIE suggests that a much better approach would be for AEMO and network businesses to utilise their existing real time data, gathered via SCADA and smart metering facilities. This data, coupled with intelligent monitoring and analysis (such as self-learning and neural networks), should provide sufficient insight into how the DER installations, in aggregate, respond to various triggers. This should enable reasonable estimates to be made of how these devices are likely to respond in aggregate into the future.

Obviously, the utilisation of these devices will continue to evolve and change into the future, meaning that the monitoring and analysis tools used by AEMO and the networks will need to be regularly tuned. This is a more practical and cost effective approach than the proposed “brute force” approach of taking a detailed snapshot at the point of installation, and then assuming that pattern of behaviour will remain unchanged.

In terms of ensuring adequate management of the connection of DER devices, rather than a bottom up approach that aims to capture each and every device in a central register, ENGIE suggests that a better approach is to ensure that adequate Australian Standards are in place for these devices. Such standards would include matters such as frequency and voltage disturbance capabilities.

ENGIE trusts that the comments provided in this response are of assistance to the COAG Energy Council in its deliberations. Should you wish to discuss any aspects of this submission, please do not hesitate to contact me on, telephone, 03 9617 8331.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Chris Deague". The signature is fluid and cursive, with a period at the end.

Chris Deague
Wholesale Regulations Manager