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Australian Energy Market Commission
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ERC0227 Register of distributed energy resources

Energy Consumers Australia is the national voice for residential and small business energy consumers. Established by the Council of Australian Governments Energy Council (the Energy Council) in 2015, our objective is to promote the long-term interests of energy consumers with respect to price, quality, reliability, safety and security of supply.

We appreciate the opportunity provided by the Australian Energy Market Commission (the AEMC) to comment on the National Electricity Amendment (Register of distributed energy resources) Rule 2018 Draft Rule Determination (the Draft Determination).

The draft rule gives Australian Energy Market Operator (AEMO) and the electricity distribution network business visibility of where distributed energy resources (DER) are connected so they can plan and operate the power system more efficiently.

Increasingly consumers are participating in energy markets as partners, being active in producing, sharing and trading energy generated on-site in their home or business. These consumers are telling us that they are investing in solar systems, and intend to invest in batteries in the future, to take control over their energy bills and to reduce their reliance on the electricity grid. The proposal to require a register of these consumer assets therefore has direct relevance to these consumers that invest in distributed energy resources.

Energy Consumers Australia elected not to submit at the initial stages of the rule change as we were aware that there are many parties who could provide the AEMC with detailed comments, that would enable the intention of the COAG Energy Council request to be fulfilled. As this has proven to be the case, we support the intent to make the necessary rules to implement the register and to make information in the register available, including to emergency services.

The primary framework of the rule in the Draft Determination is to require AEMO to establish a register and to develop guidelines that Distribution Network Service Providers (DNSPs) must follow to provide information for the register.

This is an appropriate framework in our view.

However, in our view there are ways that the process could be simplified and facilitated that are not within the powers of AEMO to effect. As an example, if the generating unit is a battery the information that AEMO will require will include technical details about the battery.

Details that might be required include the following.¹

¹ This list was simply drawn from <https://www.solarchoice.net.au/blog/battery-storage-system-specifications>



- **Nominal capacity:** The total amount of energy that the battery can hold at a time, usually described in kilowatt-hours (kWh). Sometimes the nominal capacity of a battery is the same as the usable capacity, but not always.
- **Usable capacity:** The amount of energy that a battery can hold after depth of discharge (see below) is taken into account, in kWh.
- **Depth of discharge (DoD):** The percentage of the battery's capacity that can be regularly discharged without significantly damaging the battery or reducing its lifespan.
- **Maximum power:** The maximum/peak amount of power that a battery can generate at a given time, for a short period (usually 3-30 seconds), in kilowatts (kW).
- **Continuous power:** The amount of power the battery will generate in normal, non-peak operating conditions – the amount of power you can ordinarily expect out of the battery.
- **Roundtrip storage efficiency:** The efficiency of charging and discharging the battery – how many kWh do you get out for every kWh you put in? For most batteries this actually varies depending on how the batteries are used (e.g. fast discharge can result in poorer efficiency), but you can usually get an average figure.
- **Cycle life:** The number of charge/discharge cycles a battery has before it is considered to have reached its 'end of life'.
- **Design life:** Sometimes it can be unclear if cycle life refers to warranted cycle life or design cycle life. Design life is the number of cycles/years you can expect the battery to operate in a given application (is it for an off-grid system? grid-connected system? multiple daily cycling? etc). Beware that this term is often marketing speak – a battery bank's design life may be much longer than its warranted life.
- **End of life (EoL):** End of life is the point at which the battery would ordinarily be replaced. In most cases, end of life is associated with a decreased ability to hold a charge – which is why you'll see figures like '80% retained capacity'. Flow batteries (Redflow) will retain all of their capacity (100% EoL), while some lithium batteries may retain as much as 90% (e.g. Enphase and Sonnen). LG Chem's range of batteries have a 60% EoL figure, while Tesla's Powerwall 2 has an EoL figure of 70%.
- **Megawatt-hour throughput (MWh throughput):** The total amount of energy you can expect the battery to 'pass through' over its lifetime, in MWh (1,000kWh = 1MWh).
- **Ambient temperature range rating:** Batteries are sensitive things and will not operate as well as they could if the outside temperature gets too hot or too cold. Operating outside of the prescribed temperature range may damage the batteries (thus shortening their life), reduce their efficiency or both (read more on Battery University), and/or void the warranty.
- **Product warranty:** This is the part of a warranty that covers all parts of the battery unit – including the cabinet/casing (if applicable) and things like the interface (e.g. LCD interface).
- **Performance warranty:** This is the amount of time you can expect the battery to continue to operate – within specified parameters, of course – or it will be replaced. Most battery storage systems for home use have 5 - 10 year performance warranties.
- In addition, for safety purposes details on the battery chemistry is also required.



While there clearly is a significant amount of detail required, all the details will be the same for every individual unit with the same manufacturers model number. The accuracy of the data held by the registry data is likely to be greater if the amount of data that needs to be transferred is minimised.

In her submission on the AEMC's Consultation Paper, Dr Crossley from the University of Sydney proposed that a register be maintained that contains all the information by model number of equipment imported (or manufactured) in Australia so that all that needs to be recorded and relayed to the central register is the model number.²

Energy Consumers Australia supports this recommended approach. Over time it will reduce the costs and improve the accuracy of the register. However, our concern is that AEMO may not be able to implement such an approach.

Within the confines of the National Electricity Law (NEL) we suggest that it could be possible to implement such an approach by requiring AEMO to maintain the register of DER equipment types and making it a requirement that only equipment types that are in the register can be connected by the DNSPs.

In her submission Dr Crossley also proposed that registration could be facilitated by an 'app' that would enable an installer to simply scan relevant product bar codes, enter an address and/or National Meter Identifier (NMI), and any other site-specific details. Energy Consumers Australia commends the development of such an app to the DNSPs collectively, with a common, single app for the whole country being the easiest to develop and maintain.

In relation to the safety issues, it is our understanding that the ability of emergency services personnel to identify where and how a battery is installed could be beneficial. The easiest way to capture this information would be by one or more photographs. However, we are unsure whether the term 'information' in the Draft Rule would cover a photograph. Were AEMO to determine that they will store photographs but not require them, we are unclear whether the Draft Rule would enable AEMO to write guidelines about how this information (photographs) is to be provided.

Finally, we note that the Draft Rule states that AEMO may satisfy the requirements to maintain the register

'if it stores DER register information in one or more databases, including without limitation the databases it maintains under the Market Settlement and Transfer Solution Procedures.'

If AEMO uses the Market Settlement and Transfer Solution (MSATS) then AEMO will build the IT systems using what are referred to as Business-to-Market (B2M) procedures. However, if AEMO uses another database, the communication to maintain this data (including our suggested additional DER equipment type register) would normally be a Business-to-Business (B2B) transaction covered by the B2B procedures. For the avoidance of doubt the rule should explicitly state that the communication between the DNSPs and AEMO are to be B2B or B2M transactions.

Thanking you again for the opportunity to comment on the Draft Determination. If you have any questions please contact David Havyatt on 02 9220 5500 or at david.havyatt@energyconsumersaustralia.com.au.

Yours sincerely,

Rosemary Sinclair AM
Chief Executive Officer

² <https://www.aemc.gov.au/sites/default/files/2018-05/The%20University%20of%20Sydney%20Law%20School%20%28Dr.%20Penelope%20Crossley%29.PDF>
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