

INFORMATION

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Integrating energy storage systems into the NEM

The Australian Energy Market Commission has made a more preferable draft rule that makes it easier for energy storage systems and hybrid facilities to register and participate in the national electricity market. This includes allowing aggregators of small generating and storage units (like a home battery) to provide power system security services into the market. The draft rule also makes changes to how non-energy costs are recovered. This will better reflect how participants use and benefit from the non-energy services that the Australian Energy Market Operators procures to operate the power system in a safe, secure and reliable manner.

A future-focused framework for a changing market

The market is moving towards a future that will be increasingly reliant on storage. Storage will be needed to firm up the expanding volume of renewable energy as well as deliver the growing need for critical system security services as the ageing fleet of thermal generators retire. While the existing storage capacity in the national electricity market (NEM) today is relatively small, it is forecast to increase significantly in the coming years. Therefore, it is critical that this rule change not only resolves immediate issues that AEMO identified in its rule change request, but that it also creates a framework that facilitates innovation to supply energy reliably at the lowest cost to meet the long-term needs of consumers.

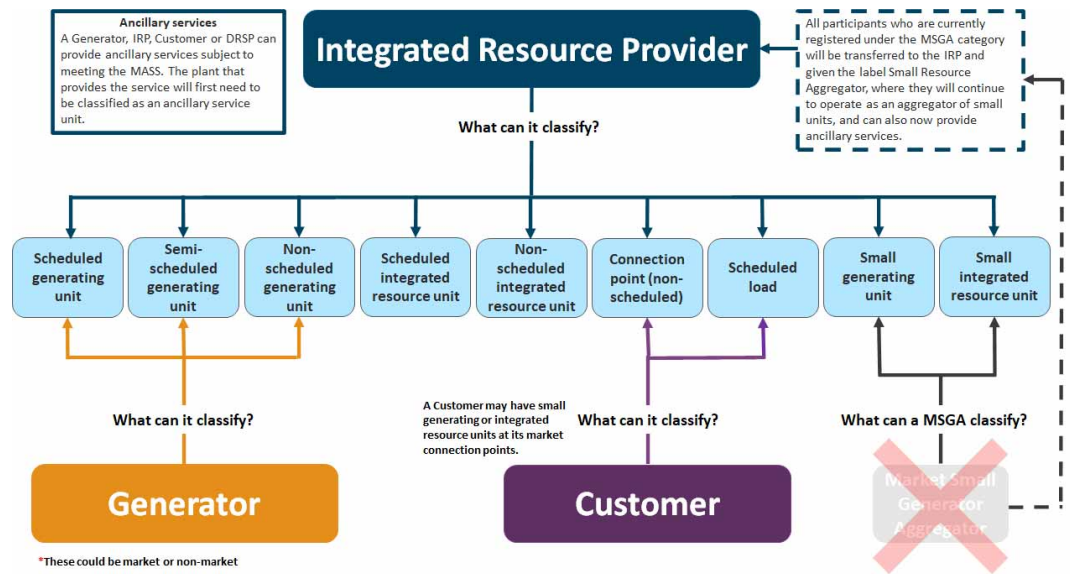
The Commission's draft rule

The Commission's draft rule makes a number of changes that better integrate storage into the NEM. The draft decision also changes the rules to facilitate the future market where storage and hybrid systems are likely to play a much bigger role in firming up renewable energy while ageing thermal generators continue to transition out of the market. These draft changes include:

- Introducing a new registration category, the Integrated Resource Provider (IRP), which would allow storage and hybrids to register and participate in a single registration category rather than under two different categories. Figure 1 provides an overview of the classifications and services that can be provided by the new IRP category.
- Providing clarity for scheduling obligations that apply to different configurations of hybrid systems, including DC coupled systems (which have different technologies behind a single inverter) so that operators of these systems will have flexibility to choose whether those technologies are scheduled or semi-scheduled.
- Allowing hybrid systems to manage their own energy behind the connection point i.e. measuring dispatch conformance 'in aggregate', subject to system security limitations.
- Clarifying that the current approach to performance standards that are set and measured at the connection point will apply to grid-scale storage units, including when part of a hybrid system.
- Transferring existing small generation aggregators to the new category, and enabling new aggregators of small generating units and/or storage units to register in this category (noting that new aggregators will still be able to register as a Market Customer). Aggregators registered in this new IRP category will be able to provide market ancillary services from generation and load.
- Amending the framework to recover non-energy costs based on a participant's consumed and sent out energy over relevant intervals, irrespective of the participant category in which it is registered. Consumed and sent out energy will be measured separately for all market participants and not netted at the connection point, or among a market participant's

connection points. It would not include the energy produced and consumed behind the connection point, for example, rooftop solar production that is consumed on site.

Figure 1: Classifications and services that can be provided by Market Participants.



Key benefits of the draft rule

In the short-term, the draft decision will remove barriers to storage and hybrid systems participating in the market and create a more level playing field for all participants. In the longer term, these changes are the first steps along the path towards a two-sided market in which technical obligations are placed on services not participant categories.

The draft decision combines a number of reforms that better accommodate participants with bi-directional energy flows into the Rules, simplify the registration process for storage participants and allows hybrid facilities a clear avenue to join the NEM. In particular it:

- enhances system reliability and security as it would encourage and promote the entry of new storage capacity that would help to firm up the growing amount of renewable energy in the market
- allows greater flexibility in how small storage units can be used in the market
- aligns with the reform-direction of the ESB towards a trader-services model.

The changes align the recovery of non-energy costs framework with the principle of beneficiary and causer pays. The Commission considers the cost of services to support the power system should be funded by those who benefit from or cause the need for them. This change provides a forward-looking framework that encourages new and innovative business models through removing cross-subsidies and incentivising participants to manage their demand for these services by recovering non-energy costs proportionally from those who benefit from or cause the need for them. In addition, the draft rule provides a permanent solution to the settlement and equity issues raised in separate rule change requests.¹

Link to the ESB's post-2025 reforms

The more preferable draft rule has been considered alongside the Energy Security Board's two-sided market work which is looking at simplifying the participation framework more holistically, with a move towards a services-based model and a single trader participant category in the future. The changes proposed in this draft rule solve the immediate issues relating to integrating storage that were raised by AEMO, and takes important steps towards the two-sided market future being developed by the ESB.

¹ These rule changes can be accessed at [NEM settlement under low, zero and negative demand](#) and [Settlement under low demand](#).

Next steps

The Commission invites submissions on this draft rule determination, including the draft rule, by 16 September 2021. The consultation period is nine weeks. The Commission will provide a briefing on the draft determination prior to 16 September 2021.

Further background information can be found on the project page [here](#).

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