AEMC

INFORMATION

INTEGRATION OF DISTRIBUTED ENERGY RESOURCES

Reforms to efficiently integrate more distributed energy resources by enabling a two-way grid

The Australian Energy Market Commission has made a final determination on updates to the National Electricity Rules and National Energy Retail Rules to integrate distributed energy resources (DER) such as small-scale solar, batteries and electric vehicles more efficiently into the grid.

Overview of the smart solar reforms

The Commission's final determination makes way for a future of solar, batteries and electric vehicles, bringing power networks into the 21st century. It recognises the significant uptake of solar PV and other DER by consumers and provides a long-term, sustainable plan to get more solar into the grid and reduce solar wastage. Following consideration of feedback on our draft determination, the final package of reforms has three key components:

- **Clear obligations on distribution businesses to support energy flowing both ways**
  - Clarification that export services are part of the core services to be provided by distribution businesses
  - Removing complete export bans: customers seeking an export connection must be provided a non-zero export limit, unless exemptions apply
  - Requiring distribution businesses to plan for the provision of export services and explicitly explain their approach to DER integration in their regulatory proposals
  - Extending the existing planning and investment arrangements to exports, giving the AER the ability to ensure expenditure to provide export services is efficient.
- **Enabling distribution businesses to offer a range of options to encourage solar owners to limit solar waste, save money and benefit the grid**
  - Removing the existing prohibition on distribution businesses from developing export pricing options, which can help get more out of the network infrastructure
  - Requiring distribution businesses to offer a basic export level in all their tariffs without charge for 10 years
  - Introducing new customer safeguards to help with transition to export pricing, including:
    - requirements that existing solar customers cannot be put on export pricing arrangements until 1 July 2025 at the earliest - unless they elect to do so
    - requirement on the distribution businesses to develop and have an approved export tariff transition strategy describing any plans to phase-in export pricing over time
    - increase in trial tariffs thresholds to support distribution businesses to develop and trial new, innovative network tariffs.
- **Strengthening customer protections and regulatory oversight by the AER**
  - distribution businesses will be required to consult widely and test and trial the options they put forward using export tariff guidelines to be developed by the AER
  - The AER will:
    - undertake a review considering incentive arrangements for distribution businesses to deliver efficient levels of export service and performance
    - report annually on the performance of distribution businesses in providing export services to customers
    - develop customer export curtailment values (CECVs) to help guide efficient levels of

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investment for exports and support other regulatory processes

- update its connection charge guideline to reflect the restrictions imposed on static zero export limits.

Overall, these reforms will enable more solar to enter the grid, support the growth of batteries and electric vehicles, put downward pressure on electricity prices and help decarbonise the energy sector faster.

Rule change requests

The reforms were made in response to rule change requests submitted by SA Power Networks, the St Vincent de Paul Society Victoria, and the Total Environment Centre together with the Australian Council of Social Service. These proponents requested that amendments be made to the Rules to integrate DER more efficiently into the electricity grid. The final rules incorporate many of the proposed rule changes they put forward, as well as opportunities the Commission identified to improve the regulatory framework, and consequential rule changes.

The need for these reforms

Australian energy consumers have led the energy decentralisation charge by enthusiastically embracing DER. Around 20 per cent of all customers in the National Electricity Market (NEM) now partly meet their electricity needs through rooftop solar PV generation, and sell excess electricity back into the grid. According to AEMO's forecasts, rooftop-solar-installed capacity across the market is set to far exceed that of the market's largest remaining coal generator in the near-future and will double or even triple by 2040.

DER are transforming the way consumers interact with the electricity system. They are enabling customers to make decisions about how and when they use and export electricity, and are providing a means for customers to participate in the broader electricity system through buying and selling energy services. For some, DER are providing an additional source of revenue that, in many cases, more than offset electricity bills.

All consumers can benefit significantly if DER are efficiently integrated into of the electricity system. Successful integration will see more distributed renewable generation connecting to the grid – and in a way that makes the best use of the 'network platform'.

For owners of DER, efficient integration will provide the opportunity to maximise the return on their investment. This could range from using their exported electricity to reduce their bills, to accessing and participating in the growing number of new energy services markets – or a combination of both. Efficient integration could also significantly benefit non-owners through lower total system costs. Generation assets (such as solar PV and batteries) could drive down energy costs by providing low cost energy, as well as ancillary services in competition with traditional providers.

While there is no doubt that DER provide many benefits to consumers and the energy system, without these changes to the regulatory framework, consumers would have faced growing limitations to the amount of energy they can export.

This is because all networks have an inherent level of hosting capacity for DER. But networks were built when energy only flowed one way. Now, they are increasingly being used to export energy from customers and approaching the limit of their basic level of capacity to support additional exports. As a result of these two-way flows, the ability of networks to transport electricity safely, securely and reliably is being challenged. These challenges raise medium- to long-term planning and investment issues.

The regulatory framework has an important role to play – it sets expectations on behaviour, it uses incentives to drive better outcomes, and very importantly, it provides safeguards to protect consumers against monopolistic behaviours.

In addition, it must also support the security of the grid and the people who own renewable technology as well as those who don't. It must provide flexibility for changing customer and jurisdictional preferences, different network circumstances, and technology and market developments as they emerge.

This means re–thinking and updating how market incentives and services are priced.

The Commission's final determination creates a framework that does just this. It allows as many consumers as possible to connect their renewable technology to the grid. It protects those who cannot, or choose not to, invest in it from higher network costs. It also helps the grid operate securely.

A 'do nothing' approach would have led to a worse outcome for all. Distribution network constraints could become a bottleneck to more low cost, renewable energy connecting to the grid. There would have been increasing instances where customers are limited in their level of exports or not be allowed to export at all.

These reforms to the access, pricing and incentives arrangements are foundational to a future grid.

The grid of the future will need to strike the right balance between hosting as many DER as possible, while at the same time maintaining distribution security and minimising cost for all users.

Further, as more and more DER connect, networks will need to play an even greater role in facilitating DER (and their owners' desire) to participate in the systems and markets available.

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