



Australian Government  
Australian Renewable  
Energy Agency

**ARENA**

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System Services Rule Changes  
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## **ARENA submission to System Services Rule Changes Consultation**

This submission provides background information and insights from projects funded by the Australian Renewable Energy Agency (ARENA) as relevant to the AEMC's current rule change consultation process.

In summary -

- **Two-sided market** - The 2020 Integrated System Plan indicates that rooftop PV capacity could be up to 35GW by 2035 (i.e. equivalent to current NEM peak demand). In capacity terms, distributed energy resources (DER) could outstrip large-scale investment across the all time-scales and this has implications across all aspects of the electricity system, including at the transmission level. In this context, many of the above issues will need to be addressed by transitioning to a more 2-sided market such that demand side participants have significantly greater incentives to contribute to power system security.
- **Principles for assessment** - As an extension to the AEMC's principles of 'technology neutrality' and 'flexibility', solutions should account for the capacity for system services to be provided at various system levels (i.e. transmission scale, through to DER). While this may seem implicit there are indications of some siloing between current system services and DER reform agendas. This is evidenced by the current consultation paper being silent on the implications of DER for future system security challenges or solutions.
- **Fast frequency response** - ARENA supports consideration as to how appropriate incentives for fast frequency response (FFR) can be developed. This should reflect the capacity of batteries and other inverter-based generation to provide primary regulating and contingency frequency response as well as inertia-like response. It should also reflect the urgent need for incentives to encourage targeted responses (from generation

and load) during major events in light of the issues with the current Under Frequency Load Shedding Scheme identified by AEMO.

- **Operating Reserves Market** - The proposal for a 'scarcity price adder' (as being considered by the ESB Post-2025 Review) has the advantage of allowing all costs to be kept 'in-market'. This is important to provide symmetry in costs and risk exposure of supply and demand sides resources. Large-scale demand response and aggregated DER will play an increasingly important role in the transition to renewables. There are also potentially inconsistencies in sizing the operating reserve market with regard to a deterministic standard (e.g. N-2) while other market settings are based around a probabilistic reliability standard (i.e. 0.002% or 0.0006%).
- **Ramping service** - Studies have confirmed that increasing solar generation during the day can increase ramping costs in the evening. This can provide a very strong price signal for capacity to be available in the evening without the need for additional incentives. Should an additional incentive be created, it is important that it reflect the ability of the demand side to reduce the underlying requirement for ramping through load and generation shifting.
- **Capacity commitment mechanism** - ARENA notes that the availability of VRE and demand response can be highly sensitive to on-the-day conditions. ARENA is investing in a range of projects to improve same-day forecasting for solar and wind. We expect that information available to the market closer to real time will allow for much more reliable and efficient resource commitment than could be achieved a day ahead.
- **Synchronous services markets** - A priority for market reform is to ensure that all essential system services are appropriately incentivised (either through regulation or price signals). Innovations in power electronics are rapidly evolving and ARENA is supporting a range of trials that demonstrate how inverter-based generation might complement or substitute for synchronous generation, including in relation to the provision of inertia-like response and system strength.
- **Efficient management of system strength** - ARENA agrees that the current 'do no harm' framework does not support coordinated investment by generation and transmission. A number of ARENA studies have highlighted that substantial cost savings can be achieved through better-coordinated investment in synchronous condensers, and other remediation strategies, at different system levels. Reforms should ensure appropriate cost and risk allocation to drive lowest-cost solutions and provide transparency of costs for generators and consumers.

Further detail is provided in the attached [Stakeholder Submissions Template](#).

## About ARENA

The Australian Renewable Energy Agency (ARENA) was established in 2012 by the Australian Government. ARENA's function and objectives are set out in the *Australian Renewable Energy Agency Act 2011*.

ARENA provides financial assistance to support innovation and the commercialisation of renewable energy and enabling technologies by helping to overcome technical and commercial barriers. A key part of ARENA's role is to collect, store and disseminate knowledge gained from the projects and activities it supports for use by the wider industry and Australia's energy market institutions.

Please contact Jon Sibley, Principal Policy Advisor ([jon.sibley@arena.gov.au](mailto:jon.sibley@arena.gov.au)) if you would like to discuss any aspect of ARENA's submission.

Yours sincerely

Darren Miller

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