AEMO/ENA Open Energy Networks consultation paper

Total Environment Centre submission

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Total Environment Centre's National Electricity Market advocacy

Established in 1972 by pioneers of the Australian environmental movement, Total Environment Centre (TEC) is a veteran of more than 100 successful campaigns. For nearly 40 years, we have been working to protect this country's natural and urban environments: flagging the issues, driving debate, supporting community activism and pushing for better environmental policy and practice.

TEC has been involved in National Electricity Market (NEM) advocacy for 14 years, arguing above all for greater utilisation of demand side participation — energy conservation and efficiency, demand management and decentralised generation, storage and trading — to meet Australia's electricity needs. By reforming the NEM we are working to contribute to climate change mitigation and improve other environmental outcomes of Australia's energy sector, while also constraining retail prices and improving the economic efficiency of the NEM — all in the long term interest of consumers, pursuant to the National Electricity Objective (NEO).

TEC's energy market advocacy is funded by Energy Consumers Australia.

Introduction and summary

TEC congratulates AEMO and the ENA on initiating a timely project, given the opportunities and challenges created by the rapid uptake of DER in Australia. We agree with the paper's characterisation of the challenges involved, especially where there are reverse energy flows caused by high DER exports to the grid during periods of relatively low demand.

However, the technical complexity of this development has resulted in a consultation paper which is broadranging but not easy to respond to. This has resulted, in our view, in the paper attempting, in its options for distribution level optimisation and dispatch, to propose three 'one size fits all' distribution system operator (DSO) platforms. We consider this approach is unwarranted at this time and may mitigate against the flexibility required for optimal DER uptake and utilisation.

While we accept the paper's summary of key functions in DER optimisation (Table 1), essentially there appear to be two distinct groups of problems which may be conflated by proposing a single solution:

1. The need to maintain *system security* in the face of high reverse flows from DER into the grid (the DSO function).
2. The need for one or more *trading platforms* to facilitate trading within peer to peer (P2P) and virtual power plant networks and between them and the existing wholesale market.

We consider that the responsibility for #1 should be shared between AEMO and the networks, while #2 should be devolved to third party providers such as Greensync's deX platform and Reposit's GridCredits software. This division would be consistent with AEMO's current role as system operator, the regulatory requirement for networks to avoid energy trading, and the role of third parties in the development of a competitive consumer-focused marketplace.

It is also based on our awareness that DER optimisation may mean different things to different parties. To prosumers it is likely to mean primarily maximising self-consumption, choice and arbitraging opportunities. To the system operator it is likely to mean maintaining the reliability of the system. To networks it should mean maintaining reliability plus ensuring that (wherever possible) DER exports do not necessitate infrastructure augmentation. To trading platform operators it means orchestrating exports to maximise arbitraging and ancillary services opportunities.

Consultation process and objectives

The paper's purpose is 'to lay the foundations for the establishment of an agreed framework to facilitate increased levels of DER, and its integration and optimisation with the system.' This is laudable. But one of the questions that arises is, agreed by whom, on whose behalf? Even for DER owners there may be multiple overlapping preferences as well as value streams including self-consumption and arbitraging but also resilience or risk mitigation, support for climate action and 'early adopter' techno-fascination. The paper is

understandably strong on engineering but it would be worthwhile to also consider how non-*homo economicus* factors including altruism influence the expectations and behaviour of DER owners.

Further, as argued above, DER optimisation appears to be assumed to be a singular, algorithmic Holy Grail that balances the needs of DER owners, other consumers, networks, the system operators, aggregators and retailers. More likely, with so many potentially conflicting interests it may be more realistic to speak of optimisations (plural). Nevertheless, we consider that it would be worthwhile establish a hierarchy of needs or optimisations—ie,

1. System security.
2. Avoiding or managing network constraints.
3. Arbitraging.

Where there is a conflict between the needs of different parties (eg, when the aggregated dispatch of home batteries in response to a spike in the wholesale price threatens system security), the hierarchy would determine who or what gets priority.

Finally, the paper refers to the potential for DER optimisation to result in benefits of '$1.4 billion in avoided network investment and a lowering of household electricity bills by $414 a year.' However, there are also costs associated with the DER revolution even under optimal conditions—associated with improved inverter standards, the plan DER register, network upgrades to handle big reverse flows, market trading platforms, and so on. These costs will certainly not outweigh even the strictly economic benefits of DER, but they are worth noting, if not quantifying.

Principles for framework design

The overarching principle should be the long term interest of consumers, pursuant to the NEO. Also, given the energy transition is driven above all by the need to address climate change, another principle should be added to this list:

- Promoting the least-cost decarbonisation of the energy system.

Immediate actions

TEC concurs with the list of suggested 'no regrets' actions that should be explored and implemented in parallel with consideration of longer term frameworks. However, we seek clarification of the statement that 'At present, there is no category suitable for the registration of a large aggregated DER provider which would facilitate participation in the central dispatch process.' This appears to be what was enabled by the Small Generator Aggregator Framework introduced by the AEMC in 2012.

Also, given the reference to 'Piloting and testing aggregation, market and mediation platforms before they begin to impact operating frameworks', it seems odd that the paper makes no mention of the progess of deX, Greensync's ARENA-funded DER trading platform.

Metering

Future iterations of this process should consider the opportunities offered by smart meters for greater more effective utilisation of DER. For instance, net household consumption data is available in theory on at least an hourly basis, yet customers only have access on a daily basis, if it all, to this granular data from the network or retailer. Utilising the full functionality Smart meters would be helpful for consumers to monitor and make the most of their DER.

Conversely, this project could consider whether there are better alternatives, in a high DER environment, to the current metering system, including whether it should be supplanted by more sophisticated inverter and cloud-based monitoring and responsive technologies.

For more information please contact Mark Byrne, Energy Market Advocate, markb@tec.org.au.

Yours sincerely,

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