



14 August 2018

Mr Stuart Johnston
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Dear Mr Johnston,

Open Energy Networks Consultation Paper

Origin appreciates the Energy Networks Australian (ENA) and Australian Energy Market Operator (AEMO) providing the opportunity to comment on their Open Energy Networks consultation paper. The paper comprehensively identifies and discusses a range of technical challenges that both the market operator and distribution networks will face as the penetration of both passive and active distributed energy resources (DER) increases. It seems, however, the ENA and AEMO have jumped to an operational and technical solution to deal with the consequences of consumer decisions rather than asking what incentives could improve the operational and investment decision-making in the first place.

We believe the ENA and AEMO have missed the pivotal consumers' perspective in this consultation. This includes considering the following questions:

1. What services do consumers want from networks going forward?
2. What is the role of networks going forward in delivering those services?
3. What incentives are required to promote efficient investment and operational decision-making from the perspectives of: consumers, retailers/aggregators and the networks?

Only in considering these foundation questions can we identify and assess viable solutions, which may or may not include a form of a distribution system operator (DSO).

Additionally, the paper does not consider whether the existing regulatory framework for network businesses is fit for purpose going forward. The paper explains that the use of the network is changing fundamentally and in each of the models put forward, the role of a network business would change to varying degrees. It seems timely that we ask whether networks continue to have the best practice incentives frameworks in a distributed energy future.

We are at the early stages of active DER uptake, which provides an opportunity to assess the implications of a more fundamental framework redesign. Reviewing the incentives framework for networks in the context of their changing and emerging role can help promote efficient operational and investment decisions.

The services consumers want from networks

Consumers are changing the way they use the electricity grid. The grid is moving away from being a means to supply reliable energy to one supporting two-way energy flows, including exports for those

who invest in distributed energy. We would characterise the services consumers are looking for networks to provide as follows:

1. deliver reliable supply;
2. facilitate timely and cost-reflective grid connection;
3. support predictable network access (export); and
4. deliver these services at low cost.

Networks currently provide consumers services relating to 1, 2 and 4.

Reliable supply is captured under the national regulatory framework and state-based reliability standards; it is what drives network investment and operational management decisions. It is what sets the foundation for the Australian Energy Regulator's network Revenue Determinations.

Timely grid connection is currently something the ENA is reviewing and seeking to improve. In our experience, connection timeframes can vary differently between distribution network businesses, particularly as connection agreements increase in complexity. There are also inconsistent communication protocols between distributors, retailers and consumers, which can make it difficult to manage consumer connection timeframe expectations. Finding ways to improve the consumer's connection experience – in terms of time, cost and communication – is in the long-term interests of consumers.

Supporting predictable network access is the new service networks are now being asked to deliver. While networks have a process for determining access for passive DER sources, like solar PV, the predictability and certainty of network export capability is important for active DER assets; it determines the economics of a DER investment. The predictable part of this service recognises that unfettered network access may not be practical in all parts of the network, particularly where an asset is connecting in an already constrained area. Having timely and accurate information and connection options available to consumers can allow them to make informed decisions that meet their own needs while also accounting for their impact on other consumers. It is uncertain whether the current regulatory framework encourages networks to deliver this consumer service in the most efficient and effective way.

Delivering services at low cost is a function of the incentives framework, which is discussed below.

Role of networks

Networks in the future will need to focus on facilitating and supporting two-way energy flows on the grid, making timely and cost effective operational and investment decisions to make that happen. In the context of the consumer services defined above, we characterise the role of distribution networks in a distributed energy future as:

1. delivering reliable energy supply;
2. operating a secure network system with two-way energy flows;
3. supporting predictable access for asset exports; and
4. delivering cost effective network solutions (e.g. investment, connection).

As above, the existing regulatory framework provides incentives to deliver some of those services, but not all. For example, the move from operating a secure network system of predominately one-way flows to two-way flows requires a substantive change in operational processes and system monitoring. Finding the most cost-effective network solutions to do that may require different ways of thinking; as discussed in the Consultation Paper. Additionally, decision-making to support predictable network access for exports is not prominent under the existing framework.

A decision to introduce a distribution system operator – or similar – may not necessarily support networks from delivering these core roles effectively in absence of other reforms. A DSO type role

may be one way to coordinate localised dispatch but we should consider that against alternatives that focus on the decision-making of the asset owners/operators. An alternative outcome could be less complicated and less costly to implement.

Getting incentives right up front

Here is a proposed framework for considering the incentives for the three core participants: consumers, retailers/aggregators (e.g. asset operators/optimisers) and networks.

Objective 1: more efficient consumption and investment decisions by consumers

To deliver this, consumers would require price signals and transparent information (at both the time of device/asset investment and use) that reflect or capture:

- the impact that investment has on the network; including
- the value loss or creation depending on whether the investment helps or hinders network capacity or capability.

Objective 2: more efficient decision making from retailers/aggregators on asset investment and optimisation

To do this, retailers and aggregators require price signals that enable them to:

- optimise across wholesale and ancillary markets outcomes; within
- the parameters of local network incentives/signals.

By providing the retailer/aggregator with a localised price signal, they can reassess the prospective value of an energy or ancillary services offer. The market does not necessarily require localised system orchestration if market participants are already incorporating local network value and availability into their wholesale and ancillary market bids and offers.

Objective 3: co-optimised and dynamic operational and investment decision-making by networks that support consumers' efficient use of the network in a cost-effective way

The current network regulatory framework is overly costly and complicated for all parties to participate in. The framework is also set up to consider network investment or operations. However, the future network is likely to be less about infrastructure delivery and more services focused, with investment being one way to deliver that service. We believe it is timely to explore what incentives framework and regime could support networks in delivering the services required in the emerging energy sector in a more efficient, flexible way; we would support processes that allow for transparent, dynamic and responsive decision-making that is open to constructive stakeholder engagement.

Operational questions with DER optimisation framework models

Origin also has some queries as to how the optimisation across local networks and the wholesale energy and ancillary markets could work in practice. In each model, the local network feasible "bid and offer solve" becomes an input into the national energy and ancillary markets. The output is then dispatch instructions for all assets – distributed and utility scale.

Assuming we have that interpretation correct, there is a question as to what happens if not all of the local network solution is dispatched. What happens if only half the solution is dispatched by AEMO, but that partial combination is no longer a feasible solve in the local network. This could occur if part of the local solution used voltage support as well as energy, but only one or the other of those services is dispatched. What's the possible consequences for both the market as well as the non-compliant market participant?

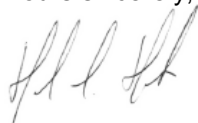
If a solution is to offer “bundled” localised solutions to AEMO, where the solution is either all dispatched or not at all, then the query is whether that approach gives priority to local network solutions over grid connected solutions. If this were the case, then that would have some fundamental market design implications, and may not necessarily deliver solutions that were consistently in the long-term interests of consumers.

These are methodology questions, which raise concerns that the solutions may not be best fit for the problem the ENA and AEMO are looking to solve – and perhaps that is because the paper is focusing on how to solve DER optimisation through a technical solution without considering the role of incentives in addressing consumer, retailer, aggregator and network decision-making.

Further discussion

Thank you again for the opportunity to provide comments on the ENA-AEMO Consultation Paper for Open Energy Networks. Please contact me should you wish to discuss any aspect of this submission further.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'H. Heath', written over a light blue horizontal line.

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