

6 December 2018

ECONOMICS AND INDUSTRY STANDING COMMITTEE - INQUIRY INTO MICROGRIDS AND ASSOCIATED TECHNOLOGIES IN WA

Australian Energy Market Operator supplementary information:

For the Committee's further consideration, please find below additional information following the Australian Energy Market Operator's appearance at the Inquiry on 21 November 2018.

Transcript of evidence, page 13:

Question: Mr D.T. REDMAN: Can that hierarchy of priority you just talked about be ranked in consumer benefit?

The operation of the power system and market mechanisms must keep pace with the transition taking place within the electricity sector:

- Growth of zero marginal cost energy through renewable generation;
- Continuing requirement (recognised by the Reserve Capacity Mechanism) of the need for dispatchable capacity to maintain reliability of the power system;
- Increasing reliance on essential ancillary services to support the security of the power system and power quality (frequency, voltage, system strength) due to the variable and non-synchronous nature of variable renewable generation
- Increasing engagement of end consumers empowered by the deployment of distributed energy resources (DER)

Through this evolution, AEMO sees customer benefits arising through two avenues:

- providing opportunities for individual customers to benefit from their positive contributions to support the reliability and security of the power system; and
- reforms that seek to minimise the total cost of meeting customer demand.

The following list of opportunities can help to position Western Australia for the energy transition and the need for regulatory design to embrace flexibility:

- Wholesale Electricity Market (WEM) Reform: Moving to a constrained network access for the SWIS – existing work being led by Public Utilities Office (PUO), legislation in 2019, supported by extensive change to subsidiary instruments
 - Minimise the total cost of network and generation/storage investment over the long term, by increasing network utilisation and recognising that some network congestion for a few hours a year is efficient where it avoids or defers costly network investment
 - Enable other reforms, particularly the WEM reforms (described below) to improve automation and promote flexibility in the operation of the market and power system
- WEM reforms – this PUO reform program will deliver a 'step change' to the operation of the energy and ancillary service processes of the WEM in 2022 (though is contingent on the implementation of constrained network access):
 - Minimise the total cost of energy and ancillary services in real time
 - Deliver increased automation and transparency in market dispatch processes, which is compulsory to manage system reliability and security in a constrained grid and supports an efficient market

- Minimise the reliance on, and cost of, ancillary services to manage forecasting uncertainty by dispatching energy more frequently (every five minutes rather than 30 minutes)
- Allowing end consumers to respond to price signals in the provision of essential system and ancillary services – this is a multi-layered process:
 - Clarify the technical reliability and security standards for the operation of the power system, clearly assign responsibility for satisfying those standards, and establish robust governance mechanisms for their ongoing review. These standards are currently under consideration in the PUO's network and market reform programs and are expected to lead to changes to the Electricity Networks Access Code (ENAC), Technical Rules, Network Quality and Reliability of Supply (NQRS) Code and the WEM Rules. AEMO is supporting the PUO in this work.
 - Specify the services that market participants can provide to contribute to satisfaction of the reliability and security standards, and the markets or mechanisms through which those services are procured and valued. The PUO has commenced this work under the WEM reform program and has engaged technical consultants to support this process. AEMO is supporting the PUO in this work.
 - Maximise the opportunities and incentives for end consumers with DER to offer those services and benefit from their contribution to satisfying the reliability and security standards. This will also be critical to provide AEMO with visibility and some control of the actions of end consumers with DER to assist in managing an increasingly variable power system. Measures to improve opportunities and incentives for end consumers may include:
 - changes to DER technical standards;
 - retail tariff reform to reduce cross-subsidies;
 - creation of a Distribution System Operator (or equivalent) as being considered in the joint ENA-AEMO OpenNetworks initiative;
 - changes to the WEM Rules to allow registration and participation of utility-scale storage facilities and micro-grids; or
 - changes to the WEM Rules to allow 'multiple trading relationships', whereby an end consumer can benefit by offering services to the market via a third-party aggregator while retaining a relationship with their retailer

The PUO's networks and market reform program provides an opportunity to advance these changes, albeit this work is generally only being done cognoscenti of the DER developments and additional policy and implementation work explicitly on DER is required to more fully achieve the opportunities. Moreover, with networks and market reform regulatory changes targeted for 2020 to support an implementation go-live date of 1 October 2022, it is critical that the PUO work is sufficiently prioritised and resourced to maximise the benefits without delaying the foundation WEM reforms in the program.

- DER register – in recognition that many customers may be unable or unwilling to offer services to participate in new market mechanisms, whilst understanding the significant impact that uncoordinated DER will have on system operations, a comprehensive register of DER will provide AEMO and Western Power with information about the presence of DER to assist in system forecasting, planning and operation. These have the ability to reduce total system costs, as improved forecasting can reduce the need for conservative safety margins in operating the power system and network. Improved DER standards will also reduce the unintended impact on the network and avoid costs (eg distribution transformer tap changers for voltage control) required to counter impacts.

To capture these opportunities, it is critical that the following be prioritised and supported:

- Enact constrained access for the SWIS, including passage of the requisite legislation.

- The PUO's network and WEM reform programs, which will update the regulatory regime to reflect the modernising power system. It is vital that this reform program achieves as much as possible prior to its 'go-live' in 2022.
- Develop a DER strategy:
 - funding of resourcing at PUO to develop policy and progress regulatory change to realise DER opportunities through stakeholder engagement;
 - undertake trials to prove up concepts and improve other changes (eg regulations, standards);
 - implement actions which increase daytime demand (and reduce peak demand) such as removing barriers for and incentivising storage (large and coordinated small scale) and load controllers;
 - provide visibility, predictability and as last result controllability of DER through improved standards and creation of DER register;
 - coordinate and optimise DER between system and network operations by consideration of a Distribution System Operator (or equivalent);
 - allow greater ability to utilise DER such as enabling 'multiple trading relationships'.