

13 October 2016

Ms. Suzanne Falvi  
Senior Director  
Australian Energy Market Commission (AEMC)  
PO Box A2449  
Sydney South NSW 1235

## **Demand Response Mechanism and Ancillary Services Unbundling Draft Rule Determination**

Dear Ms Falvi,

The Energy Networks Association (ENA) welcomes the opportunity to make a submission to the AEMC in response to the *National Electricity Amendment (Demand Response Mechanism and Ancillary Services Unbundling) Rule 2016 Draft Rule Determination*, published by the AEMC on 8 September 2016.

The ENA is the national industry association representing the businesses operating Australia's electricity transmission and distribution and gas distribution networks. Member businesses provide energy to virtually every household and business in Australia. ENA members own assets valued at over \$100 billion in energy network infrastructure.

The ENA acknowledges that the consideration of this rule change request is an important part of a suite of rule changes in response to the 2012 *Power of Choice Review*.

It should be noted that most Network Service Providers switch network loads and distributed energy resources (DER) as part of their Demand Side Management programs. In this case the switching is controlled by the Network Service Provider and the performance of the network is pre-determined and predictable. However, when either loads or DER are switched to provide Market Ancillary Services, or switched by a customer or other market participant in response to market prices, this can have implications for network management. Specifically, the performance of the network is not predictable and cannot easily be controlled by the Network Service Provider. ENA notes that the AEMC have indicated in the draft determination that retailers and demand side management providers already have an estimated 435 MW of load under their control. It must also be noted that AEMO does not have power system performance obligations at the distribution level. Power system performance on the distribution network must be managed by the Network Service Providers.

The ENA therefore concurs with the AEMC's draft determination not to make the Demand Response Mechanism aspect of the rule change request, and offers the following comments about the Ancillary Services Unbundling rule change.

### ***Ancillary Services Unbundling (ASU)***

ENA is broadly supportive of amending the rules to allow for the introduction of a new registered participant role of Market Ancillary Services Provider. This participant would be able to register a spot market load or DER as an ancillary services load to sell Market Ancillary Services using either an individual spot market participant or an aggregate of spot market participants. This would occur independently of

whether the Market Ancillary Services Provider is the Market Customer (e.g. the retailer) responsible for those spot market participant. ENA agrees with AEMC's statement indicating that

*"More and greater diversity in the providers of ancillary services would complement the increased penetration of intermittent and non-synchronous generation."*

ENA acknowledges that there are already opportunities for registered participants to offer demand response into the Market Ancillary Services (FCAS) market. The proposed amendments will however potentially create further opportunities for participation in this market. However, this development could lead to increased switching of network loads and DER for FCAS which as noted above, could have implications for network management.

Switching of large loads or an aggregate of smaller loads or DER may:

- impact on power quality on parts of the network; and/or
- create a peak in demand that exceeds the capacity of the network; and/or
- interfere with the Network Service Provider's own demand management programs.

Further details are provided below.

### **1. Power Quality**

If a Market Ancillary Service Provider aggregates a large number of small loads or DER over a wide area, sudden switching of the aggregated load is unlikely to have a significant effect on the network. However, if the load or DER to be switched is concentrated into a small area e.g. on a single distribution feeder, in addition to possibly significant transient effects, a sudden longer term change in voltage may result. Operation of on-load tap changers on the transformers at substations may be able to compensate for the change in voltage, but this may take several minutes. Furthermore, when the load or DER is no longer required for FCAS purposes, and is switched again, further changes in voltages may occur, and again take minutes to correct.

It should be noted that Australian Standards exist which nominate the acceptable voltage range at customers' terminals. If switching of large single or aggregated loads results in network voltages that do not comply with the Australian Standards, network rearrangement or augmentation may be required to alleviate further problems. Unless this can be avoided, the costs for these necessary network augmentations would ultimately be passed onto customers.

For these reasons, the ENA believes affected Network Service Providers should be consulted prior to the acceptance of any distribution connected load or DER being approved for inclusion in the Ancillary Services Market.

### **2. Peaks in Demand that Exceed Network Capacity**

If load that is normally off, or DER that is normally on, is scheduled to provide a FCAS Lower Response, it may be suddenly switched. For instance, an aggregation of off peak water heaters (traditionally switched off during the day<sup>1</sup>) would be an example of such a load. If the network is already heavily loaded in that area, overloading of that section of the network may result. In extreme cases, this could lead to interruptions to customers. This situation is exacerbated if the network is switched abnormally to facilitate maintenance or under emergency condition.

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<sup>1</sup> While it is recognised that some DNSPs are experimenting with existing AFLC hot water systems to absorb solar output during the day and manage network congestion, the traditional use of off-peak hot water is referred to in the example above.

Any load that is normally switched on, could be scheduled to provide a FCAS Raise Response. There will generally be some diversity amongst the aggregation of these loads. However, if the aggregated load is switched off, the diversity may be lost when the loads are switched back on. This could lead to a peak in demand and overloading of some heavily loaded section of the network.

Unless these situations can be avoided, network augmentation in some areas may be required.

### **3. Network Service Providers' Demand Management Programs**

A number of Network Service Providers already have agreements in place with customers to control appliances with discretionary loads, or to engage DER, at certain times in exchange for payment or lower price tariffs. Such programs are widespread and can be used to manage demand in parts of the network. In many cases these demand management programs have avoided the costs associated with augmenting the network. It is noted that the Demand Management Incentive Scheme and Demand Management Incentive Allowance exist to encourage Network Service Providers to implement demand management solutions in lieu of network augmentation. Demand management programs include programs which switch off, or change the temperature settings of discretionary appliances at times of peak load to avoid network augmentation.

If loads switched on (or DERs switched off), to meet a FCAS Lower Response are supplied from sections of the network that are utilising demand management to manage local network peaks, overloading of the network may occur; as the switching on of some network loads by the Market Ancillary Service provider will counteract the Network Service Provider's demand management activities (i.e. switching off of loads to manage the network peaks). Similarly, loads switched off (or DER switched on) to meet a FCAS Raise Response may, due to loss of diversity, also cause a later increase in maximum demand in some parts of the network (refer to Point 2), counteracting demand management activities.

Furthermore, any FCAS Solution that is coincident with a networks demand management solution, may exacerbate the power quality issues described in point 1.

#### **ENA's Proposal for ASU**

The issues identified above will only occur if large participants, or a large aggregation of participants are switched in certain parts of the network. Although this scenario is unlikely in the short term, in the longer term it is possible that Market Ancillary Services Provider may be able to offer a significant proportion of the load in an area, potentially resulting in the problems described above.

Paragraph 6.3.3 (b) of the Draft Rule Determination indicates that in accordance with Rules Clause 3.8.3(b1) AEMO would have to approve any application for an aggregated load, and would need to be satisfied that *"power system security is not materially affected by the proposed aggregation."* ENA is recommending that the final rule ensures that Network Service Providers are also consulted prior to approval of loads, DER, or an aggregation of loads and/or DER, to ensure that switching to provide an FCAS response will not adversely affect the network.

Furthermore, ENA would recommend that a Load Management Protocol (or agreements with Market Ancillary Service Providers) be established to ensure proposed switching does not adversely affect the network.

#### **Demand Side Management**

ENA notes that any switching of network load by any market participants, may have the potential to create issues in network reliability, and power quality, as described in the preceding sections of this document.

ENA would therefore like to see the introduction of a load management protocol to be used by customers and retailers participating in demand management and a mechanism to allow Network

Service Providers to be consulted about loads and DER that retailers or customers are proposing to switch in response to market prices.

If further information is sought on this matter, please contact Mr. Peter Cole, Director Future Networks, on 0434 871 422 or by email on [pcole@ena.asn.au](mailto:pcole@ena.asn.au)

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'John Bradley', written in a cursive style.

John Bradley  
**Chief Executive Officer**