



Enel X Australia Pty Ltd  
Level 18, 535 Bourke Street  
Melbourne, Victoria 3000  
Australia  
T +61-3-8643-5900  
[www.enelx.com/au/](http://www.enelx.com/au/)

AEMO

Submitted by email: [mass.consultation@aemo.com.au](mailto:mass.consultation@aemo.com.au)

11 March 2021

Dear Matthew, Akeeleah

**RE: Market ancillary services specification review – Issues paper**

Thank you for the opportunity to provide feedback on the issues paper for the review of the MASS.

Enel X operates Australia's largest virtual power plant.<sup>1</sup> We work with commercial and industrial energy users to develop demand-side flexibility and offer it into the NEM's energy and ancillary services markets, the RERT mechanism, and to network businesses. Enel X is a registered Market Ancillary Services Provider (MASP).

This submission sets out our responses to the questions raised in the issues paper. The key points are:

- It is reasonable to expect FCAS providers to only respond when enabled. However, AEMO will need to consider how this proposal could feasibly be implemented by aggregated facilities when only partially enabled.
- We understand why AEMO is concerned about the possible effects of extreme over-delivery from "non-frequency responsive" facilities, but strongly advise that some careful studies are done before deciding whether a limit is necessary and, if so, at what level it should be set.
- It is not clear why AEMO is proposing changes to the trigger ranges for switching controllers. An explanation of why the current ranges present a system security risk is needed.
- We encourage AEMO to open the regulating FCAS markets to all capable participants, including small-scale and aggregated behind-the-meter batteries, as was intended by the *Ancillary services unbundling* rule change.
- While not in scope of this review, AEMO has not provided any evidence, either in the issues paper or the RIS, to justify its conclusion that limits on the quantity of switched reserve will be required. AEMO must conduct a proper assessment of the potential system security risks before commencing a review of the constraint formulation guidelines for this purpose.
- The interim arrangements for the provision of FCAS by DER should be included in the MASS now.

If you have any questions or would like to discuss this submission further, please do not hesitate to contact me.

Regards

Claire Richards  
Manager, Industry Engagement and Regulatory Affairs  
[claire.richards@enel.com](mailto:claire.richards@enel.com)

---

<sup>1</sup> Bloomberg NEF, December 2019.

## General MASS review

### Frequency responsiveness of FCAS

#### Responding only when enabled

It is reasonable to expect FCAS providers to only respond when enabled. However, AEMO will need to consider how this proposal could feasibly be implemented by aggregated facilities when only partially enabled, and interactions with the proposal to bring the trigger ranges for switching controllers closer to the NOFB. For example, which assets should be disarmed if an aggregated facility offers 30MW of response but is only enabled for 10MW, and what setpoints will those assets trigger at?

Some providers may need time to develop and implement this capability. We ask that AEMO take this into consideration if the proposal is introduced.

#### Limits on over-delivery

We understand why AEMO is concerned about the possible effects of extreme over-delivery, but strongly advise that some careful studies are done before deciding whether a limit is necessary and, if so, at what level it should be set.

NZ provides a useful example here. In 2013, the NZ system operator was asked to investigate whether the over-provision of interruptible load would cause power system security issues. The context was that the existing interruptible load service requirements specified a minimum delivery requirement, but not a maximum, and so significant over-provision of interruptible load could occur. There was concern that this over-delivery could lead to the frequency overshooting, such that an under-frequency event would be immediately followed by an over-frequency event, and potentially lead to system collapse if the over-frequency recovery went far enough to cause generators to trip off. It seemed intuitively obvious that such a problem could occur, and would be very serious, and could be avoided by imposing restrictions on the amount of over-delivery allowed. It was expected that the study would confirm this and provide evidence to justify setting the limit at a particular level.

Transpower's investigation studied the over-provision of interruptible load under a variety of scenarios including low inertia conditions, extended contingent events and HVDC contribution.<sup>2</sup> However, it concluded that "over-frequency due to interruptible load over-provision is not currently an issue nor is it likely to become an issue in the foreseeable future". Specifically, the study found that 25 per cent of the total system load in the North Island, and 16 per cent of the total system load in the South Island would need to be providing the interruptible load service for it to present a system security concern – an implausibly high figure, and very far above the quantities of interruptible load participating in the market or ever likely to do so.

It is necessary to allow some over-delivery, particularly for switched load sites, as there is always a level of uncertainty as to how and whether a particular site will respond. Aggregators manage this uncertainty by monitoring the sites carefully and modelling the probability distribution of the aggregated response size. They then offer into the market only the quantity they are sufficiently certain that they can deliver – i.e. a value in the lower tail of the distribution. As a natural consequence of

---

<sup>2</sup> See: <https://www.transpower.co.nz/sites/default/files/bulk-upload/documents/TASC%20035%20Report.pdf>

avoiding under-delivery through this conservative approach, they will usually over-deliver by some amount.

Aggregators already have a financial incentive to minimise over-delivery, as they are only paid for what they offer and are enabled for. The risk of imposing a limit on over-delivery in addition to this incentive is that it will increase the risk of under-delivery, which presumably is not a desired outcome from AEMO's perspective. To reduce this risk, any limit should only be imposed if modelling shows that it really is necessary, and it should be set to the highest level that the modelling shows is sufficient to solve the identified problem.

### **Revision of switching controller trigger range**

The paper notes that frequency performance has improved markedly because of the mandatory PFR rule change and that there now is a disparity between the work expected of a proportional controller and a switching controller. AEMO argues that those with proportional controllers that remain at wider dead bands (0.15 Hz) because they haven't made PFR changes yet, or are not affected by the PFR rule, are responding to contingency events more often than switching controllers set to wider response settings.

It's not clear why AEMO is proposing changes to the trigger ranges for switching controllers on the basis that something "appears unjustified". And, as AEMO notes, frequency performance has improved markedly since PFR implementation, so excursions outside the NOFB are rarer. The paper includes very little detail on why this is being proposed, and no data to support its claims. Clearer explanation of the system security or market implications that this is having is needed before proposing solutions.

Frequency set points should not be used to make sure that providers are used more often or more equally. Rather, they should reflect what frequency AEMO is comfortable for the system to deviate to in a contingency event and the amount of response that is needed at each set point to arrest and restore system frequency. Bringing all providers in closer to the NOFB would mean they provide a frequency response more often. This would increase many providers' costs, which will be reflected in their offer prices. It could also result in frequency overshoot and make the system more vulnerable to a significant contingency event.

If AEMO does decide to tighten the trigger ranges for switched controllers, we ask that this not be applied retrospectively. Existing switched providers and their constituent loads have made investments and decided to participate in the market based on the frequency set point agreed with AEMO. Requiring that the set point be changed will change the investment case and may therefore change a providers' incentive to continue participating in the market.

Other options that AEMO could explore in the context of concerns about the "frequency-responsiveness" of switched controllers include:

1. Increasing the granularity of the trigger set points assigned to switched loads to enable a portfolio of switched loads to mimic a proportional response more closely.
2. Assigning larger switched loads to lower frequency set points, and smaller ones to higher set points, to minimise any potential for frequency overshoot.

## Regulating FCAS requirements

We do not have any comments on the proposed regulating FCAS requirements. However, we encourage AEMO to open the regulating FCAS markets to all capable participants, including small-scale and aggregated behind-the-meter batteries.

In the development of the final rule for the *Ancillary services unbundling* rule change, AEMO noted that the existing MASS did not accommodate aggregated dispatch for the purposes of providing a regulating raise or lower service. The AEMC noted this comment in the final determination and recommended a review of the MASS to address this. It was the intention of that rule change to unbundle the provision of *all* ancillary services from the provision of energy, not just the contingency services.

Section 2.4 of the current MASS suggests that aggregated assets can be used to provide regulating FCAS, but none do because the requirement is that the provider have AGC and SCADA capability. This is a significant barrier to entry for aggregated assets. The service is therefore provided entirely by scheduled energy market participants. The lack of access to the regulating FCAS markets also reduces the incentive for behind-the-meter battery providers to invest in a proportional controller over a switching controller.

As we saw when the contingency FCAS markets were unbundled, removing barriers to the regulating FCAS markets will increase competition and lower prices. And, increasing access to the regulating FCAS markets is likely to become even more important as the traditional providers (e.g. Yallourn) exit, more renewables connect, and the need for service increases. We therefore encourage AEMO to explore:

- how to establish a baseline (other than an energy market dispatch target) from which an aggregated provider could be dispatched up/down for regulating FCAS
- alternatives to AGC signals and SCADA that would enable aggregated providers to participate.

## Issues associated with pending rule changes and matters for separate consultation

### Managing frequency responsiveness of FCAS reserve in aggregate

AEMO has not provided any evidence, either in this paper or the RIS, to justify its conclusion that limits on the quantity of switched reserve will be required. Imposing such restrictions without properly understanding the materiality of the problem (and indeed whether it is a problem) would inefficiently prevent some types of suppliers from providing FCAS and so increase the cost of AEMO's FCAS procurement.

As noted above, NZ analysed the impacts of over-provision of switched load and found that 25 per cent of the total system load in the North Island, and 16 per cent of the total system load in the South Island would need to be providing the interruptible load service for it to present a system security concern. AEMO must conduct a proper assessment of the potential system security risks, like NZ did, before exploring solutions or commencing a review of the constraint formulation guidelines for this purpose.

AEMO should also seek to model the impact of a limit on switched controllers on FCAS costs. A major contributor to FCAS cost reductions over the past few years has been switched control following the introduction of *Ancillary services unbundling* rule. It is not a matter of the cost or complexity of the controller: proportional control is simply not possible for most of these loads. Cutting out low cost switched providers and pushing up costs for no clear system security benefit runs counter to the NEO.

Further, AEMO can already set the trigger frequencies for switched providers. It can also increase the granularity of the setpoints it gives switched loads. This means that it can create a pseudo-proportional response by staggering trigger frequencies across more granular setpoints.

We also seek further information on the limit on the quantity of switched reserve in the Tasmanian FCAS markets, as there does not appear to be any publicly available information on what the constraints are or the NEO argument for introducing them.

### **MASPs to become DRSPs**

While not covered in the consultation paper, it may be helpful to note that come October 2021, the MASP market participant category will be superseded by the Demand Response Service Provider category. This should be reflected in the revised MASS.

## **Excluded matters**

### **Interim arrangements for FCAS provision from DER**

There is no reason for AEMO to wait for the energy storage rule change to conclude before bringing the interim arrangements for the provision of FCAS by DER into the MASS. The rule change request is considering a much broader range of issues, and the question of bi-directional flows from ancillary services facilities forms a small, supplementary part of it.

And, as noted by AEMO in that rule change process, AEMO already has the power to give effect to this by defining an umbrella term, e.g. “ancillary services facility” in the MASS. It would make sense to include the interim arrangements in the MASS through this review.