



MASS Review

Australian Energy Market Operator (AEMO)

Provided via email: mass.consultation@aemo.com.au

19 August 2022

Dear AEMO MASS team

### **Amendment of the Market Ancillary Service Specification (MASS) – Very Fast FCAS – Draft Report and Determination – Tesla Submission**

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide the Australian Energy Market Operator (AEMO) with feedback on the Amendment of the Market Ancillary Services Specification (MASS) – Very Fast FCAS Draft Report and Determination. At large Tesla supports AEMO's position on progressing a 1 second market, and we are supportive of the approach proposed for aggregated assets – specifically the adoption of 100ms measurement resolution with a 5% discount rate applied to the bids.

Tesla does, however, have concerns with some of the new suggestions that have been made by AEMO in this second round of consultation.

In particular, we are concerned that AEMO is now using this consultation to change the operational requirements for existing market access to **all** FCAS markets – particularly for VPPs – when this is clearly out of the scope of the consultation. Tesla is also concerned that some of the newly introduced requirements included in the MASS Review 2022 Redline could be read as ambiguous. Our comments below are focused on the following areas:

- The introduction of new type-testing requirements as a measurement asset requirement for **all** market access, not just for participating in the new very fast raise and very fast lower markets.
- The application of the 50ms scan rate for control systems.
- The application of the headroom and legroom requirements.

As noted in our previous submission to AEMO, aggregated distributed energy resources (DER) and virtual power plants are going to make up a significant proportion of the total storage capacity needed across the NEM for the lowest cost energy mix – more than 50% of the installed GW capacity is estimated to be orchestrated DER by 2050<sup>1</sup> (see following figure).

---

<sup>1</sup> AEMO 2022 ISP

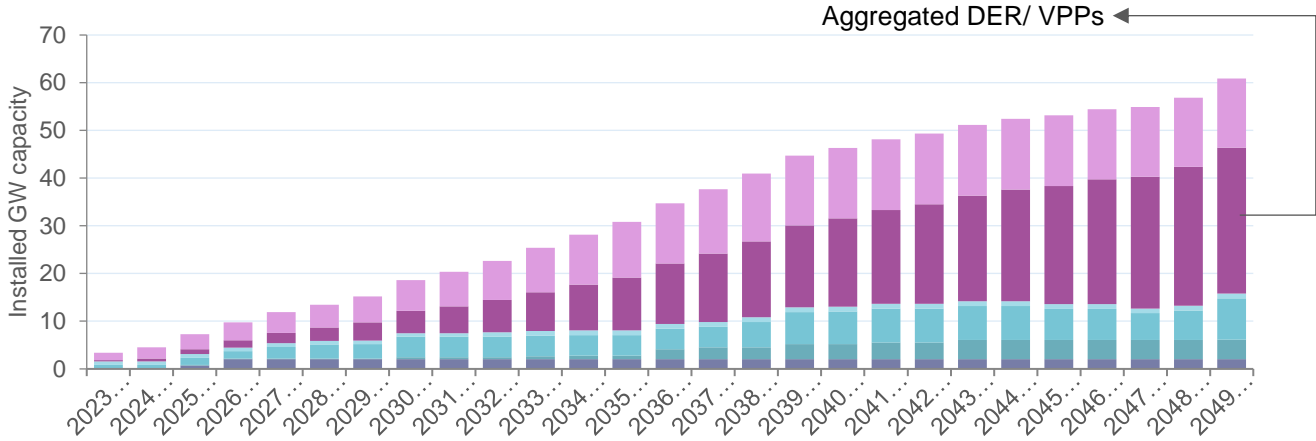


Figure 1: AEMO 2022 ISP Storage Projections

It will be critically important that AEMO creates the right market settings to continue to incentivise more controllable DER in the market, and that the costs of market participation do not outweigh the benefits. Where this is the case, we will continue to see passive DER make up the market share. Tesla’s general feedback on AEMO’s position outlined in the Draft Determination, as well as more information on the above three points, is provided below. For more information on any of the information provided in this response please contact Emma Fagan at [efagan@tesla.com](mailto:efagan@tesla.com).

Kind regards

Tesla Energy Policy Team

## Tesla feedback on AEMO MASS Review Draft Report and Determination

### Market design

From a first principles perspective, Tesla supports the near final market design principles that have been proposed by AEMO.

- We support the new very fast raise and lower markets being introduced as a 1 second market.
- We support 100ms measurement resolution and the approach taken to discounting bids. Tesla believes that the 5% discount that has been suggested for aggregated assets appears to be reasonable.

In particular Tesla is supportive of the approach that AEMO has taken and the thought that has gone into the inclusion of aggregated DER. It is great to see AEMO recognizing that aggregating a number of different assets leads to an overall lower error rate, and that AEMO is not automatically excluding assets for having a less-granular measurement resolution. The discounted bidding approach is a good example for all international jurisdictions for encouraging all different asset types into the market.

### Type Testing to IEC 61557-12

Tesla has concerns with the introduction of the proposal to introduce new product type-testing requirements for several reasons.

1. It is being introduced as a metering requirement for all market access, even though the scope of the consultation is limited to the introduction of new very fast raise and lower markets. It has also been introduced as a new requirement mid-way through an open consultation process;
2. The specific standard recommended, IEC 61557-12 has been based on the recommendation of a single person with no proper market sounding or due diligence conducted on alternatives; and
3. There is a best practice approach to considering and adopting new product standards in Australia.

These areas are considered in more detail below –

#### Scope of the current MASS review

AEMO has been very clear on the scope of the current MASS consultation throughout both the initial MASS Issues Paper released in May, and this current Draft Determination that the scope of the consultation is to “*accommodate two new markets for Very Fast FCAS*”. AEMO also notes that the consultation is undertaken in accordance with rules 3.11.2, 11.140.2 and 8.9, and specifically rule 8.9.2 which notes that the initial consultation must set out the particulars of the proposal and the provision of the rules under which the consulting party is making the proposal, which in this case is Rule 11.140.2, introduced through the National Electricity Amendment (fast frequency response market ancillary service) Rule 2021 No. 84 (Amending Rule).

Rule 11.140.2 is particularly clear in outlining the scope of AEMO’s obligations for this consultation:

## CLAUSE

**11.140.2 Amendments to market ancillary service specification**

- (a) By 19 December 2022, *AEMO* must review and, where necessary, amend and *publish* the *market ancillary service specification* to take into account the *Amending Rule*, including amendments to incorporate:
- (1) a detailed description of the *very fast raise service* and the *very fast lower service* in accordance with [clause 3.11.2\(b\)\(1\)](#); and
  - (2) the performance parameters and requirements which must be satisfied in order for a service to qualify as *very fast raise service* or a *very fast lower service* and also when a *Market Participant* provides those services, each in accordance with [clause 3.11.2\(b\)\(2\)](#).
- (b) Amendments made to the *market ancillary service specification* under paragraph (a) must apply from the *commencement date*.

As per 11.140.2 the consideration of performance parameters and requirements is specific to the requirements to qualify as a *very fast raise* or *very fast lower service*.

AEMO's current drafting of the IEC 61557-12 type testing requirement, as a requirement for **all** FCAS market access then raises a number of governance concerns. This is clearly out of scope of the existing consultation process, and does not align with rule 11.140.2, which raises a number of probity and governance concerns:

- It appears to constitute a consultation scope change mid-way through the process – even though AEMO have already ruled out a number of other considerations that are out of scope.
- There are a number of market participants – existing or new – that may not be considering very fast FCAS market access and as such will not have been engaging in this consultation process. Those participants will be impacted by this MASS change, without proper engagement. It is unreasonable for AEMO to assume that all market participants will be following potential scope changes in consultations specific to new market development on the chance that changes may also be introduced for existing market access.
- There are a range of grandfathering considerations that will need to be considered if a new product type-testing standard is introduced, and AEMO will need to consider the market implications on different asset types. I.e. VPPs will be disproportionately affected where grandfathering is introduced, as they are the assets most likely to update their registered capacity and as such be captured by new requirements.

Related to the above, the fact that this has been introduced mid-way through a consultation process as a new topic also creates governance issues and makes it difficult to properly consult on it.

#### Measurement standard due diligence

Tesla understands that the introduction of IEC 61557-12 was based on independent advice received by AEMO and appears to be the only standard recommended. We note that at least one product in market at the moment (the Schneider PowerLogic PM8000 meter) is compliant with this standard, however there are a number of other measurement standards used by different high-speed meters in the market.

- Elspec meters (using G4430 as an example) are certified to the following measurement standards - EN50160, IEEE1159, IEEE519, IEC61000-4-15, IEC61000-4-7, IEC61000-4-30 Class A, IEC62053-22/23 Class 0.2<sup>2</sup>.
- Acuvim meters<sup>3</sup> list the following measurement standards IEC 62053-22; ANSI C12.20. Note that they consider IEC61557-12 to be a safety standard, rather than an appropriate measurement standard.
- The Schneider PowerLogic PM8000 series, noted in the MASS Draft Report and Determination as being compliant with IEC61557-12. It also notes that PQ compliance reporting and analysis is undertaken in compliance with IEC 61000-4-30 class S, IEC 62586, and EN 50160.
- Separately IEEE1547 includes several frequency response and power measurement requirements that could also form the basis of measurement requirements.

Related to the above points, AEMO also needs to explore, in collaboration with industry, if IEC61557-12 is the most appropriate measurement standard. As flagged, it is designed as a safety standard for power metering and monitoring devices.

#### Best practice approach to introducing new product requirements

While we appreciate AEMO's interest in introducing new metering requirements to ensure consistent market performance, product certification is a high-cost exercise and should be done with considerable due diligence. Rather than accepting the recommendation from a single external source, Tesla recommends that AEMO run a separate MASS review process specific to the measurement verification requirements for all market access.

The best practice approach to adopting new product standards in Australia includes:

- Technical assessment by a range of different independent and industry bodies – not a single adviser;
- Cost/ benefits of introducing new type-testing and product requirements above and beyond the existing frequency and power tests that are included in the MASS currently for compliance purposes;
- Consideration of all existing international standards that currently exist and could be fit for purpose to achieve AEMO's desired outcomes;
- Related to the above, consideration as to whether type testing to a single standard is required, or if there are several standards that could be introduced to provide additional market flexibility and reduce cost; and
- A 12-month development lead time to enable products to comply – something that will not be possible with the current MASS review timeframes. **This is a particular issue for existing market access, as the new MASS will take effect immediately (or shortly thereafter) release. This would provide industry looking to participate in existing FCAS markets with no compliance lead-time. This would be unprecedented from a product compliance perspective.**

Tesla recommends that AEMO run this as a separate process to ensure that there are no probity or governance concerns that are raised by the AEMO process, which AEMO has the authority to do under rule 3.11.2. This should include a full consideration on all measurement and product standards that currently exist in market; targeted

---

<sup>2</sup> <https://www.elspec-ltd.com/elspec-shop/power-quality-analyzer/permanently-installed-power-quality-analyzers/g4430-fixed-blackbox-power-quality-analyzer/>

<sup>3</sup> <https://www.accuenergy.com/wp-content/uploads/Acuvim-II-Advanced-Power-and-Energy-Meter-Datasheet.pdf>

engagement with all impacted market participation (not just market participants interested in participating in the new very fast raise and lower FCAS market); grandfathering arrangements for existing market participants – including when sites may need to upgrade measurement equipment; and AEMO should consider any undue impacts on different types of market participants.

As per the MASS review undertaken last year, a key focus of AEMO is to avoid a situation where high-speed meters are required to be installed at every site at significant costs to consumers. A similar assessment should be undertaken in respect of type-testing, with a focus on ensuring that the standards are appropriate for residential assets as well as market high-speed meters.

An additional benefit of running this a separate process with appropriate due diligence, it provides the opportunity for international alignment. ERCOT, for instance, are looking at introducing type-testing arrangements for measurement equipment to support their newly announced VPP Demonstration. A separate AEMO led process can support international consistency in frequency measurement requirements.

### **Different scan rate for control systems**

Tesla understands that this is being introduced as an additional piece of guidance for potential market participants to ensure that there is no confusion regarding sampling rates used for measurement verification (i.e., 200ms for aggregated DER for fast FCAS market participation, and the proposed 100ms for aggregated DER for very fast FCAS markets).

Tesla has no problem with AEMO making this clarification, but we do have a question on how this will be verified. As noted by AEMO the time series for frequency scan rates and measurement verification sampling are different and should be different. As such, it will not be possible to provide live data to demonstrate compliance with this obligation. Is AEMO considering that this will form part of the registration checklist, and demonstrated with the freq-watt test data that is required for all new participants? If this is going to evolve into additional compliance obligations, it would be good for AEMO to provide more detail and properly consult on these requirements.

### **Headroom and foot-room**

As above, on the face of it, this new clause appears to be designed to provide additional context to prospective market participants that headroom and footroom needs to be maintained to deliver compliant bids.

This is unnecessary. The requirement for maintaining headroom and footroom is baked into a market participants compliance obligations. If this is not maintained, then it will be difficult for a participant to deliver compliant bids. The additional requirement to maintain headroom and footroom is ambiguous. It is unclear how AEMO are going to be enforcing this (i.e., for aggregated assets by requiring additional sites above nameplate capacity), and given the ambiguity, there is a real risk of conflicting compliance requests.

There is also a risk that if this is interpreted at face value as requiring capacity to be reserved for FCAS market participation, then this will limit the ability of both behind the meter DER and utility scale battery energy storage

systems (BESS) assets from participating. These assets are designed to be fully flexible and optimised for market conditions at the point in time. VPP and utility BESS operators will bid available capacity into the market with the highest need during each bidding interval. For aggregated DER, having reserve capacity at all times will limit this flexibility, and limit the customers utility of the asset and reduce the viability of VPPs from being able to participate in markets.

Tesla suggests that this additional clause is unnecessary to efficient market operation. If it is retained, we ask AEMO to provide additional clarity on what the expectations are, and how this requirement will be verified by AEMO.

### **Additional reporting requirements**

Tesla also notes additional reporting obligations that have been introduced by AEMO in a new section 5.8 of the Draft MASS. As above, these new requirements are ambiguous and could lead to AEMO making constant data requests or information requests on any topic. We suggest that this section should be limited to times where there is a real or perceived risk of non-compliance.