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Australian Energy Market Operator (AEMO)  
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**Comment on the 'Amendment of the Market Ancillary Service Specification (MASS) – DER and General consultation'**

Hydro Tasmania welcomes the opportunity to make a submission in response to AEMO'S Draft report and Determination for amendment of the MASS. Hydro Tasmania currently operates in all 8 Frequency Control Ancillary Services (FCAS) markets and participated in the AEMO Virtual Power Plant (VPP) demonstration trial at our VPP located in Queensland.

Hydro Tasmania has reviewed the proposed amendments of the MASS and has provided our comments on the DER amendments as attachment A and on the General MASS amendments as attachment B. Hydro Tasmania strongly supports the points raised by the Clean Energy Council (CEC) in their submission to this consultation and encourages AEMO to consider these recommendations.

Given the technical nature of these consultations, Hydro Tasmania would welcome the opportunity to participate in future technical working groups and discussions.

If you have any queries on this submission or require further information please contact John Cooper ([john.cooper@hydro.com.au](mailto:john.cooper@hydro.com.au)).

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Yours sincerely,



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## Attachment A: DER MASS review

### **4.1. Measurement Time Resolution for FCAS delivered by Distributed Energy Resource (DER)**

AEMO has indicated that the University of Melbourne study and their verification processes prove that less granular data leads to a theoretical error (%). However, AEMO have also confirmed that less granular does not lead to any system security risks, as well as recognising that more granulated data comes at a higher cost. Hydro Tasmania, therefore supports the extension of the VPP Demonstration Program in order to ensure that system security is guaranteed at the lowest practical cost and market-usable outcomes are developed.

Hydro Tasmania suggests that AEMO further explore the feasibility of using 100ms or 200ms data to be the standard resolution in the MASS in accordance with AS4777.2. We have noted that 200ms data is already feasible in the battery data logger of certain manufacturers. If demonstrated successfully and accepted in the MASS, this could stimulate large scale commercial applications and significantly drive down costs.

Hydro Tasmania would also like to suggest reducing the proposed discount for 1s or 200ms metered assets for current VPP Demonstration participants. This aligns with AEMO's comments on the negligible impact on system security without having 50ms metering, and enables further testing of 1s data of current VPP Demonstration participants.

### **4.2. Location of Measurement Point for FCAS delivered by DER**

In principle, Hydro Tasmania supports the consideration of the FCAS metering point to be close or at the connection point. Hydro Tasmania believes this requirement can be achieved by two approaches:

1. Directly measure the active power at the connection point.
2. As the alternative, if direct measurement at the connection point is not available, the net flow also can be mathematically calculated based on measurement points including but not limited to battery, solar and load terminals.

### **Coordination between the proposed transition periods and the new Fast Frequency Response (FFR) markets:**

Hydro Tasmania notes that on 15<sup>th</sup> July 2021, the AEMC published a final determination to introduce two new market ancillary services, to help control system frequency and keep the future electricity system secure. As detailed by the AEMC, the MASS needs to be revised by the 19<sup>th</sup> of December 2022 in order to specify the detailed description and performance parameters for FFR services.

To best coordinate the FFR timeframe as well as the VPP initiative, Hydro Tasmania suggests that AEMO create two transitional time frames:

1. A 1<sup>st</sup> initial stage VPP transitional time frame in the middle of 2022 before the MASS FFR update and ensure VPPs are included in the FFR consideration.
2. A 2<sup>nd</sup> stage VPP MASS transitional time frame remaining on the 30<sup>th</sup> June 2023 as currently planned in order to ensure the technical specifications are specified are well implemented.

**The uncertainty of DER behaviours:**

Hydro Tasmania acknowledges the technical concern in this area and the uncertainties involved. We encourage AEMO to continue to consider the learnings from the VPP FCAS initiative as well as engage with battery manufacturers as well as VPP participants in order to further understand this matter. DER behaviours due to voltage issues or extreme system conditions not within control of the VPP operator/Market Ancillary Service Provider (MASP) should be studied further in order to minimise the risk of non-compliance. Associated events, such as the DER Low Voltage Fault Ride Through (LVFRT) experience in the system event on 25<sup>th</sup> May 2021, triggered by Callide generator trip in QLD, can have a significant impact on the commercial viability of VPPs moving forward if performance requirements are not well understood and/or implemented.

For the VPP long term development, Hydro Tasmania believes that the necessary technical standard will be essential to ensure the DER performance. This technical document can be developed as a standalone piece, but refer to the MASS. With it, the participants can assess the performance upfront and minimize the potential non-compliance risk, AEMO could also address the system security concern due to the uncertainty and ultimately improve the competitiveness of VPPs.

## Attachment B: General MASS Consultation

### **5.1 MASS readability and usability:**

Hydro Tasmania is supportive of the continuous revisions of the MASS in order to improve its readability, usability and adapt to emerging issues/opportunities. However, we have also noted that the structure of the MASS has been changed extensively following the first consultation, therefore in the interest of stability and continuity, Hydro Tasmania suggests no further structural changes of MASS in this iterations until another wholesale change is proposed.

The AEMC has provided a timetable of future changes around Primary Frequency Response (PFR) and Fast Frequency Response (FFR). These rule changes are highly likely to be merged into the FCAS markets in the next two years. As such Hydro Tasmania strongly suggests that AEMO should develop a corresponding roadmap regarding any potential MASS modifications in the near future and share this with its stakeholders. This would be helpful for the market participants to understand what is anticipated at different stages as well as aiding the management of current/urgent matters.

### **5.2 Clarification of references to the Frequency Operating Standards (FOS):**

No further feedback.

### **5.3 Requirements for facilities that do not respond to frequency to deliver FCAS:**

Hydro Tasmania recognises and understands the challenges of maintaining system frequency control during contingency events. We recall a presentation from AEMO providing a high-level explanation in regards to facilities and equipment that do not respond to system frequency. Hydro Tasmania would encourage AEMO to undertake further analysis, particularly paying attention to extreme system islanding events and share the insights with market participants.

If the issues mentioned by AEMO have raised genuine system security concerns, Hydro Tasmania would be supportive to the approach that progress general limits on the facilities that do not respond to system frequency. However, the general limits proposed should be evidence based and avoid 'one shoes fits all' solution therefore be open to solutions that resolve the issues in an effective and efficient way.

### **5.4 Co-ordination between FCAS and PFR:**

Hydro Tasmania notes the statement in 5.4.2 AEMO's assessment, '*AEMO accepts that FCAS Providers should not ignore AGC when Contingency FCAS controls are active*'. We request AEMO clarify the basis of this statement and provide more detail.

Hydro Tasmania supports alignment with the existing MASS v6.0, which specifies that an AGC instruction should be suspended during contingency FCAS responding period. This is due to the potential for the AGC instruction opposing the correction direction of the contingency FCAS response, causing correction interference and potentially FCAS delivery non-compliance.

In principle, Hydro believes that the contingency FCAS response should be prioritised in order to address the system security and compliance risks during the contingency periods. The AGC regulation instruction, which is designed to control the system frequency quality within normal operating

frequency band (NOFB), should be suspended in this situation. Thus, Hydro does not support the change proposed, unless further clarification is provided.

In regards to the intention of deferring the proposed maximum allowable deadband of  $\pm 0.1\text{Hz}$ , Hydro is supportive of this approach until the mandatory PFR implementation is fully completed and reviewed.

#### **5.5 Relationship between MASS and other instrument:**

No further comments.

#### **5.6 Requirement for regulation FCAS:**

##### Regulation facility definition:

Hydro Tasmania would like to seek clarification to the following question: what is the definition/scope of the regulation facility mentioned in this section? This question was submitted in the first consultation but is yet to be clarified.

It seems that a 'regulation facility' has predominately referred to the generator's AGC, but in reality, the regulation FCAS facilities 'from end to end' included: System frequency feedback (presumably SCADA), AEMO AGC, communication systems, generator AGC and local unit controller/governor. A clear definition of the regulation facility will help the participants to well understand the technical implication of the proposal/requirement specified in this section and also technical performance monitoring.

##### Transitional Period:

Hydro Tasmania supports the implementation of the regulation transition via multiple stages. e.g. Based on the machine Dispatch Unit Identifier (DUID) size. A multiple stage approach will help AEMO to prioritise the implementation of the major DUID's. For example, beginning with a threshold over 200MW, and then progressively reaching the units in the smaller categories. It will also allow the participants like Hydro Tasmania with a fleet of 50 units and 29 power stations, to have sufficient time to plan and implement.

##### Regulation testing cycle:

As highlighted in our initial submission to the first stage of this consultation, Hydro Tasmania is in a unique position when compared with most generators on the mainland. With a total of 50 hydro units in the fleet, it is challenging to achieve large scale offline regulation tests and associated outages.

The new proposal extends the testing cycle to 3 years, however the effective workload and cost is still significant, involving on average, one and half units tested per month. Therefore, Hydro Tasmania would be supportive to the online approach. As an example

1. Integrating the proposed measurements/tests in normal operation while not participating in regulation FCAS markets with a constant energy target for a short period of time, so that the regulation tests can be carried during normal operating: and
2. After that, the regulation tests will be required only when impacting control system upgrade is undertaken or a system security issues and risks emerges warranting further assessments.

Hydro Tasmania believes that this approach would be advantageous to all market participants as it will:

1. Allow AEMO and market participants to better understand the end-to-end regulation facility performance whilst testing the entire regulation facility; and
2. Reduce cost and minimise the footprint to normal production.

#### **5.7 Requirement of the Delayed FCAS:**

Hydro Tasmania agrees that a synchronous machine droop and deadband response can result in steady state errors, thus an additional correction is needed to bring the system frequency back to 50Hz (and not the edge of the NOFB). Hydro Tasmania supports the deferral of any amendment to delayed FCAS requirements in the MASS and agree with AEMOs consideration that further understanding and analysis is needed in order to find a workable and fair approach.

#### **5.8 Issues associated with Pending rule changes and other matters for separate consultation:**

AEMO's assessment in Section 5.8.2 excludes Primary Frequency Response (PFR) from the MASS consultation. Hydro Tasmania understands that currently PFR within the NOFB is outside of the existing FCAS markets, however, PFR forms the technical foundation of power system frequency control from both a regulation and contingency perspective and therefore has a strong technical connection with all other frequency control mechanisms.

Hydro Tasmania suggests that if AEMO deems the MASS an inappropriate place to accommodate the coordination and specification between PFR and FCAS services, then the creation of a dedicated technical artefact should be considered to address this matter. Consequently, the MASS could refer to this artefact and reflect the significant changes in the PFR area that has occurred over the last year, as well as providing necessary technical guidance to participants to refer to.