



Australian Energy Market Operator
Level 22
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By email: mass.consultation@aemo.com.au

19th August 2022

Subject: AEMO “Amendment of the Market Ancillary Service Specification (MASS), Draft Report and Determination” – Published: July 2022”

Thank you for the opportunity to respond to the AEMO Draft Report and Determination for the proposed delivery of Very Fast FCAS services per the “Market Ancillary Service Specification Consultation (MASS)” published July 2022.

This is a joint response on behalf of both Rheem Australia Pty Ltd (Rheem) and Combined Energy Technologies Pty Ltd (CET), as we have a complementary interest in the Consultation Paper.

As the largest Australian manufacturer of water heaters with products in over 4 million Australian homes, we offer a wide range of traditional and renewable energy water heater models to the domestic water heating market under the Rheem, Solahart, Vulcan, Aquamax & Everhot brands. Under our Solahart brand we are the third largest supplier of photovoltaic (PV) systems in the country. Over the last four years we have also commenced the manufacture and installation of smart electric water heaters, controlled remotely by our technology partner, Combined Energy Technologies.

Combined Energy Technologies is an Australian technology company specialising in energy management for residential, commercial, and micro grid systems. CET provides home gateway devices and has extensive experience in the integration and orchestration of systems with multiple DER devices including the integration of solar PV, batteries, water heating, electric vehicle chargers, pool pumps and A/C for the benefit of the homeowner, retailer and the grid. Our references to DER should be read to include both generation and flexible load assets.

Together, Rheem and CET are already actively participating in the emerging DER market with thousands of online, mixed, orchestrated DER sites across the NEM and the WEM. Over the past decade we have identified and resolved many issues (at live field sites) to ensure that mixed, smart DER sites can be orchestrated to achieve the best financial outcomes for consumers, whilst providing a foundation for grid support services and hence grid security of supply.



This experience has given us a unique insight and particular interest in the changes proposed to the MASS to enable delivery of a Very Fast FCAS service in the market.

If the energy market is to be truly democratised, it is extremely important that any changes to market rules and associated technical specifications for participation in grid services (such as Very Fast FCAS) are made with the consumer at the centre of the solution. This will ensure that current and future investment in smart DER by households continues to be made. Fundamental to this approach will be that new rules do not favour a particular technology, technology class, or technology manufacturer, and that technology neutrality is not impeded by barriers to entry in creating or modifying energy market rules. Our specific comments and recommendations attached are underpinned by this approach.

Our comments and recommendations are supported by empirical data from an existing fleet of thousands of NEM consumer sites of mixed DER which all use our Australian developed low-cost MASS compliant metering solution (with 50ms capability). The data from these sites support our technical, architectural, and commercial positions which are in alignment with the principles of the National Electricity Objective (NEO).

As Australian based manufacturers we have made a large R&D investment in bringing to market cost effective metering that is compliant with 50ms FCAS metering, and have a desire to ensure technology neutrality, commercial fairness, and adherence to the principles of the NEO in the design of new market services.

In summary we support the proposed Draft Determination, subject to inclusions for clarity of further metrology specifications as detailed in our attached comments and recommendations.

Please find attached our comments and recommendations which have been made with a view to enhance the integrity of the MASS for Very Fast FCAS services by removing any confusion in respect to metering related specifications that we believe are not addressed by the IEC 61557-12, as they are specific to the MASS. Further we believe that any current interpretation is unclear and could lead to the use of power metering equipment of a lesser specification than was intended by the MASS for Very Fast FCAS services.

Broadly the areas we have addressed in our attachment to this letter are as follows:

- Specification of IEC 61557-12 for active power and frequency metering.
- Other Metering Specifications
- Changes from the Contingency Event Time (CET) to Frequency Disturbance Time (FDT) and Baseline Adjustment.
- Separate Controller Specification.

Whilst we applaud the use of the independent expert in drafting the proposed amendments to the MASS for Very Fast FCAS, we would suggest that AEMO give due consideration to a metrology review of our metering specification recommendations, conducted by an independent metrology organisation with experience developing standards and regulations. We would suggest the involvement of the National Measurement Institute (NMI) as the logical choice given its role in certification of revenue meters for use in the National



Electricity Market. Such as review should be conducted to help identify and correct any remaining issues, or omissions in our observations and recommendations.

Support for the above positions is included in our attached responses to the consultation questions.

As this submission has been prepared using the expertise of several of Rheem and CET's personnel, I would ask that any enquiries related to the submission are directed in the first instance to myself. I will then co-ordinate follow up responses to your enquiries or further meetings with the appropriate personnel within our organisations.

Yours Sincerely



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Attached: "Draft Determination - Rheem / CET Comments and Recommendations"

Draft Determination

Rheem / CET Comments and Recommendations

1) Specification of IEC 61557-12 for active power and frequency metering.

Having reviewed the Draft Determination, in general we agree with the proposal to require certification of FCAS metering equipment to IEC 61557-12.

However, we believe that the change creates a greater possibility of confusion when selecting off-the-shelf PMDs. Specifically, we are concerned that a PMD's IEC 61557-12 certifications and datasheet specifications may give a false impression that the PMD is compliant with the MASS.

For example, some PMDs that claim fast update rates require long (often many multiples of the update rate) measurement windows to achieve their stated accuracy. This is allowed by IEC 61557-12, but is frequently omitted from PMD specification sheets. Such a PMD might not actually comply with the MASS due to its excessively long measurement window, but could appear to do so, based on the published specifications and some reasonable assumptions.

While this is not an issue unique to the requirement for IEC 61557-12 certification and solved by type-testing requirements, the combination of an established standard (and associated range of notionally or expectedly compliant PMDs) with MASS-specific requirements (e.g. a measurement window that would make it difficult to determine compliance from published specifications) will mean that choice of a MASS compliant off-the-shelf PMD is open to interpretation.

We are also concerned that the MASS is underspecified, or could be clearer, with respect to PMD specifications. Specifically, both the IEC 6155-12 accuracy classes as well as the allowed minimum and maximum measurement windows should be explicitly stated.

Recommendations:

- The MASS should be amended to emphasise that IEC 61557-12 certification does not necessarily satisfy the MASS requirements, and we recommend that the PMD should be type tested in line with the MASS requirements.
- The required IEC 61557-12 accuracy classes should be explicitly stated (e.g. in Table 5).
- The minimum and maximum allowed measurement windows should be explicitly stated (e.g. in Table 5 / Table 6).

2) Other Metering Specifications

As raised by multiple parties in the Market Ancillary Service Specification (MASS) Public Forum on 2 August 2022, the MASS appears to be underspecified with regards to timing/synchronisation requirements, particularly where active power and frequency metering are performed by separate PMDs. We expect that other similar omissions with regards to the metering specification are likely.

Recommendations:

- The timing requirements for split active power and frequency metering should be determined and specified in the MASS. We suggest the involvement of an independent metrology organisation and the National Measurement Institute (NMI) would be a logical choice given its role in certification of revenue meters for use in the National Electricity Market.
- A review of the MASS metering specifications should be conducted to help identify and correct any remaining issues or omissions. This review should be conducted by an independent metrology organisation, ideally one with experience developing standards and regulations such as the NMI.

3) Changes from the Contingency Event Time (CET) to Frequency Disturbance Time (FDT) and Baseline Adjustment.

Recommendations:

- The MASS should be amended to clarify whether there are any additional verification requirements for the proposed baseline adjustment.

4) Separate Controller Specification.

We support the addition of a separate specification for the Controller and would suggest that the specification be more extensive.

Recommendations:

- Uncertainty requirements for controller frequency measurements should be specified (or the equivalent for analog, mechanical or other systems).
- Control system performance should be specified across a range of network (e.g. very fast RoCoF, very slow RoCoF, harmonics, etc.) and environmental conditions (e.g. a range of temperatures possibly in line with IEC 61557-12 requirements).

