

Market Ancillary Service Specification Consultation (MASS) 2021

DISTRIBUTED ENERGY RESOURCES (DER) MASS REVIEW FAQ

Q#	Question	Answer
1	Why is AEMO consulting on the MASS now?	<p>AEMO's virtual power plant (VPP) Demonstrations are scheduled to conclude on 30 June 2021. A key objective of the ARENA-funded VPP Demonstrations, as set out in the July 2019 Final Design¹ document, was to assess the suitability of the trial specification for DER, and inform consideration of any required changes to regulatory frameworks and operational processes to better integrate VPPs into the NEM. The requirements for ongoing participation in the FCAS markets should be clear by the end of the VPP Demonstrations, so that any transitional arrangements for participants can be determined.</p> <p>There have been suggestions that AEMO should delay this consultation until rule change proposals for FFR or synthetic inertia have been determined. The introduction of additional services in future does not affect the requirements for DER participation in existing contingency FCAS markets. It should be noted that DER participation in future services such as FFR and synthetic inertia would almost certainly require measurements with a resolution much higher than 1 second.</p> <p>AEMO is also using this opportunity to consult on other general issues as raised in previous consultations to improve the readability and useability of the MASS.</p>
2	How is AEMO going to be guided by the NEO when making a determination based on the formal submissions?	<p>The national electricity objective (NEO) is to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:</p> <ul style="list-style-type: none">• price, quality, safety and reliability and security of supply of electricity• the reliability, safety and security of the national electricity system <p>This means that AEMO is seeking information from participants that will help to determine which option will most effectively meet the NEO, in particular:</p> <ul style="list-style-type: none">• The cost implications for current and potential VPP providers of Option 1 (the measurement requirements specified in the current MASS) versus

¹ Available https://aemo.com.au/-/media/files/electricity/der/2021/nem-vpp-demonstrations_final-design.pdf?la=en

		<p>Option 2 (embedding the measurement requirements that were tested in the VPP Demonstrations in the MASS) to determine whether or not the measurement requirements of the current MASS remain a barrier to entry for the contingency FCAS markets.</p> <ul style="list-style-type: none"> • The impact each option will have on competition in the FCAS markets • Any technical risks envisaged with Option 2 that could potentially impact AEMO’s ability to operate the power system securely or effectively determine FCAS delivery • Any risks of market distortion associated with Option 2. <p>AEMO is very aware that either option will have different, and significant, impacts on the commercial interests of individual VPP participants and related stakeholders. However, the long term interests of consumers must be AEMO’s primary consideration - the commercial position of individual organisations cannot be a determining factor in AEMO’s decision making.</p>
3	What are AEMO’s objectives for this consultation?	<p>AEMO’s objectives for this consultation are as follows:</p> <ul style="list-style-type: none"> • To determine the ongoing requirements for FCAS provision from DER • To improve the readability and usability of the MASS, and to gain feedback from the industry regarding a number of general issues.
4	Does AEMO have a preferred option?	<p>AEMO does not have a preferred option at this stage. In keeping with AEMO’s power system security obligations, a data resolution of less than or equal to 50 ms is certainly desirable as the measurement requirement for determining the delivery of FCAS. However, when the VPP Demonstrations were launched in 2019, AEMO became aware that a 50 ms measurement requirement for every NMI presented a barrier to entry to the contingency FCAS markets for DER participants at that time, because the cost of installing the requisite technology at every participating NMI was prohibitive. Through the VPP Demonstrations, alternative (lower resolution) measurement requirements were tested and AEMO demonstrated that FCAS delivery could be satisfactorily determined at this resolution. However, AEMO notes there may be technical or market reasons not to change the 50 ms measurement requirement, and is interested in confirming with stakeholders whether the installation of high-resolution technology remains a material barrier to entry for DER given advances in metering capabilities.</p>

		AEMO will use evidence-based submissions, to assist in determining which Option best meets the NEO. Other options can be considered if submitted to AEMO with sufficient detail and evidence of feasibility, impact, cost and benefits (see FAQ 10).
5	What are the benefits/advantages of higher resolution measurement?	<p>Data with a higher resolution is required to determine the inertial component of a synchronous generator's response to a change in active power during a frequency disturbance, since the inertial component from an ancillary service facility is excluded when determining whether a generator has delivered its FCAS requirements. High-speed metering is also used to determine whether the active power response from a generator during the first few seconds of a power system incident was impacted due to a voltage disturbance, which can result in reactive power being prioritised over active power.</p> <p>A higher resolution measurement has the advantage of providing a more complete picture of system performance and is therefore more accurate.</p> <p>However, not all systems are currently able to deliver this higher resolution data and evidence from the VPP Demonstration suggests that such high-resolution measurements are not required for the purpose of verifying FCAS delivery in the existing contingency FCAS markets. AEMO needs to consider the benefits of higher resolution data from DER on system performance and FCAS compliance.</p>
6	Investments were made to participate in the trial. What would happen to VPP Demonstrations participants if they are not able to meet the ongoing measurement requirement?	<p>Participation in the trial was voluntary and VPP Demonstration participants were informed that the FCAS measurement arrangements in place during the trial were for the duration of the trial only, without guarantee that these would be incorporated into the MASS.</p> <p>To continue providing FCAS in the NEM, VPP Demonstration participants must comply with the requirements of the MASS after the conclusion of the trial. If Option 1 is adopted in full, VPPs that cannot meet the 50 ms metering requirement would need to de-register fast FCAS services and VPPs that cannot meet the measurement requirements at the connection point (as opposed to at the device level) would need to de-register all FCAS services.</p>
7	Why is a data resolution of 1 second specified for the measurement requirement under Option 2?	<p>When the VPP Demonstrations were launched, the inverters available from sites participating in the trial were capable of capturing data with a resolution of 1 second. As a trial, the VPP Demonstration FCAS specification provided that measurements of power and frequency are captured at least every 1 second, to avoid the need to install</p>

		<p>additional meters or to modify the current equipment on site. This was the lowest granularity of measurement that AEMO could consider given the need to accurately verify the delivery of the fast contingency services.</p> <p>The ability to verify FCAS delivery using data with a resolution of 1 second has been proven through the VPP Demonstrations, therefore AEMO has included Option 2 for consultation as a viable option for DER participation in FCAS markets on an ongoing basis.</p>
8	<p>Why change the measurement requirements now, and not wait for the requirements for other potential services such as FFR or synthetic inertia to be defined first?</p>	<p>AEMO is not consulting on the measurement requirement of FFR or synthetic inertia services at this stage, in advance of NER changes. As such, AEMO has not considered whether the current MASS requirements for measurement of fast services would be sufficient for an FFR product. However, DER participation in future services such as FFR and synthetic inertia would almost certainly require measurements with a data resolution much higher than 1 second.</p>
9	<p>Why can't the measurement of grid flow be used to verify the FCAS delivery?</p>	<p>The measurement of grid flow can be used to verify FCAS delivery if uncontrolled load and PV output at the same connection point remain constant throughout a disturbance. However, if the load or PV output vary, the measurement of the grid flow will not give an accurate representation of the FCAS delivery from frequency responsive devices such as a battery system or controllable load.</p> <p>If there is more than one frequency responsive device or more than one technology provider behind the connection point, the grid flow alone cannot be used to distinguish the amount of FCAS delivered by each technology provider.</p>
10	<p>Why hasn't the first option in the VPP Demonstrations FCAS specification been explicitly mentioned in the Issues Paper as a third option? Can other alternative options be considered?</p>	<p>The first option in the VPP Demonstrations FCAS specification was to capture high speed data samples of active power flow and local frequency on a time base less than or equal to 100 milliseconds at every FCAS response measurement point to meet the measurement requirements for the fast contingency services. This option was not selected by anyone participating in the trial and has not been demonstrated on an aggregate basis to AEMO. AEMO did not this option as a third alternative measurement arrangement as there is very limited information as to whether this option would be appropriate.</p> <p>AEMO welcomes stakeholder proposals for alternative measurement options. However, given no other measurement arrangement has been tested in the demonstration, an</p>

		alternative proposal should include detailed information why it should be considered over Option 1 and Option 2.
11	Is there a need for one high-speed meter for every aggregated capacity of 5MW?	<p>As per Section 3.3.1 of the Guide to Generator Exemptions and Classification of Generating Units², most generating systems with a total nameplate rating of less than 5 MW when fully connected to a transmission or distribution system are unlikely to have such an impact or cause a material degradation in the quality of supply to other Network Users.</p> <p>For systems larger than 5 MW, it is important to have high-speed data available when FCAS providers have failed to meet their requirements. One of the learnings from the VPP Demonstration was that a single high-speed meter installed at one site which forms part of a larger fleet of DER can be used to investigate the cause of an under-delivery. For example, data from the high-speed meter can be used to identify more accurately whether the correct frequency dead-bands, frequency trigger setting or droop setting have been applied.</p> <p>The draft of the Wholesale Demand Response (WDR) Guidelines³ requires telemetry from any individual WDR unit of 5 MW or greater, and from Demand Response Service Providers with an aggregated capacity of 5 MW or greater. The requirement for one high speed meter for every aggregated capacity of 5 MW is therefore consistent with the threshold specified in the draft of the WDR Guidelines.</p>
12	Why are the measurement arrangements under Option 2 limited to an aggregate with individual NMIs that are less than 1 MW?	<p>An Ancillary Service Load (ASL) with a capacity of more than 1 MW at the NMI will have a significantly larger change in active power per hertz than a residential load. For these larger connections, high-speed measurements of power must be captured to verify compliance with the MASS.</p> <p>An ASL with a capacity equal to 1 MW or more may also be registered with its own Dispatchable Unit Identifier (DUID) in the FCAS markets.</p>
13	When will VPPs be able to join the FCAS markets, now that enrolments for the VPP Demonstration have been closed?	A VPP can still be registered in the FCAS markets if it meets the requirements of the current MASS. This consultation is to determine whether or not the MASS should be changed to include alternative measurement requirements. However, the current

² Available https://www.aemo.com.au/-/media/Files/Electricity/NEM/Participant_Information/New-Participants/Generator-Exemption-and-Classification-Guide.docx

³ Available https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

		<p>measurement requirements will not be superseded, and any potential alternative arrangements will be added as an option for DER participation in the FCAS markets. VPPs that do not currently meet the MASS requirements must wait until the consultation is concluded to confirm if alternative arrangements have been included in the MASS, and whether they can participate in the FCAS markets under these new arrangements.</p>
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