Powerledger

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AEMO
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AEMO MASS Consultation Second Stage - Powerledger Submission

Many thanks for the opportunity to provide feedback to AEMO regarding the MASS amendment under consultation.

Powerledger is software for an operating system for new energy markets, enabling tracking and trading of energy, flexibility services and environmental commodities. We are developing an energy and flexibility trading platform that allows households, organisations and electricity networks to trade with each other as a dynamic nodal and responsive market.

In order to pave the way for efficient and scalable introduction of distributed energy resources (DERs) into the energy system, we are in strong support of the MASS interim arrangements as defined and tested for the VPP demonstrations.

The demonstrations have shown that distributed storage can effectively provide frequency response under the implemented arrangements for sampling rate and measurement location.

The interim arrangements furthermore reflect the changed composition of market participants, moving away from centralised commercial scale participants to an increasing number of decentralised small-scale units which requires lower hurdles for market entry to guarantee required numbers of capacity.

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Sampling Rate of fast FCAS delivery

As there are a wide range of technologies currently deployed on a broad scale in the residential space that do not support metering in a sub-second resolution, retaining the current specifications of <50 ms sampling rate limits a significant share of current and potential providers of FCAS.

The cost of retrofitting a system is likely to create unmanageable burdens for many resulting in reduced competition and limited incentive for system investment and therefore impair the adoption of battery technology across the NEM and therefore full realisation of system benefits.

The argument of under-delivery of FCAS through slower sampling can be met by the obligation to provide an increased FCAS response as indicated in the transitional arrangements published by AEMO. This would be a compromise and potentially incentivise investment in additional controlling capability for many stakeholders whilst not limiting other assets capable of frequency response from participating.

Furthermore, the implementation of one high sampling meter per 5MW of VPP capacity should provide insights into the materiality of actual under-delivery of proportional controllers with a measurement rate of 1 s.

Additionally, a switching response to frequency deviations would not be as affected by slower sampling rates and result in lower under-delivery as their response is constant and not overstated by slower sampling to the same extent as a proportional controller. The difference would only be material at the start of the contingency event if the meter does not detect the frequency deviation as quickly as a meter with higher resolution.

Measurement point location

As mentioned by various stakeholders, changing the point of measurement to the grid connection point for aggregated DER results in excluding various current and potential future FCAS providers.

Even with appropriate hardware at meter level, it will be challenging for aggregators of behind-the-meter DERs to ensure appropriate response to frequency fluctuations due to uncontrollable load devices which can lead to an insufficient response at the connection point of individual households. The result can be under- or over-delivery depending on consumer behaviour. However, the FCAS response is still delivered, as measured at device level, irrespective of prosumer behaviour behind the connection point. The FCAS enablement should also only be paid for capacities not satisfying the household load or charging from the PV system. With sufficient fleet size, a heterogeneous VPP should balance the behaviour of single units, so individual units do not have such a strong impact.

We recognise the problem presented by controllable devices reacting to surplus solar PV energy, which do not distinguish between solar excess and a battery discharge for VPP purposes. This presents an

opportunity for the asset owner for targeted behaviour during FCAS events to utilise balancing energy for controllable devices through a load increase during a contingency. If not accounted for, this will result in no positive impact on the grid from those end-consumers during contingencies and potential damage with increasing fleet sizes.

We do however, want to emphasize that the total amount of energy delivered for FCAS events is quite small, which therefore does not present an incentive for gaming between various behind-the-meter devices for small-scale customers.

To minimise the response of controllable devices to solar or battery output on delivery for FCAS, ways to coordinate them with capacities enabled for FCAS need to be introduced.

This would also provide opportunity for multiple assets behind a connection point, such as batteries and various controllable loads to provide FCAS if controllable response of devices to surplus is taken account of.

The key arguments in support of the interim solutions are:

- The tightened requirements complicate the market entry for a wide range of available capacities.
- The interim solution of additional delivery for assets that measure at a slower rate could be an ongoing solution that incentivises investment in more accurate sampling.
- Accurate FCAS measurement at the grid connection point is challenging to provide for small-scale assets. With increasing fleet size, the FCAS delivery going to the grid will be sufficiently balanced.

Please do not hesitate to contact us regarding any of the stated aspects. We look forward to the final decision and will continue our engagement in the process.

Yours sincerely,

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Co-Founder & CEO

Powerledger