21 June 2022

James Lindley
Australian Energy Market Operator
Level 22, 530 Collins St
Melbourne VIC 3000

Dear Mr Lindley

RE: Amendment of the Market Ancillary Services Specification (MASS) – Very Fast FCAS

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) consultation on the Market Ancillary Service Specification (MASS) with regards to incorporation of very fast frequency control ancillary services (very fast FCAS).

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia, helping its customers to decarbonise and reduce their environmental footprint.

Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers, while our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia.

As the second largest electricity provider to commercial and industrial businesses in Australia[1], Shell Energy offers integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120 megawatt Gangarri solar energy development in Queensland.

Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy, while Powershop Australia Pty Ltd trades as Powershop. Further information about Shell Energy and our operations can be found on our website here.

General Comments

Shell Energy contributed to AEMO's most recent review of the MASS through multiple submissions to AEMO's consultation process during 2021. We noted our interest in incorporating the very fast FCAS markets into the MASS at the time. We appreciate the consultation steps AEMO has taken thus far, including a public forum and the release of supplementary reports to inform stakeholders on issues relating to sampling rates and increased FCAS volumes.

[1]By load, based on Shell Energy analysis of publicly available data.
[2] Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2021.

The University of Melbourne's supplementary report on very fast FCAS sampling rates appears to indicate that a sampling rate of 50ms or 100ms should be sufficient to minimise both measurement errors and costs for providers. To the extent that costs for potential very fast FCAS providers can be reduced this should remove a barrier to participation, thereby increasing competition in the market. Increased competition should lead to lower overall costs to consumers.

In our submission to the AEMC's draft determination on the fast frequency response market ancillary service rule change, Shell Energy proposed that a 2-second market, could form part of a broader change to increase participation in FCAS markets and improve market outcomes. We suggested that a 2-second market could allow for the current 6-second service to be pushed out to an 8- or 10-second service. The slow (60-second) and delayed (5-minute) services should remain as they are now.

The rationale for a change to an 8- or 10-second service is that introduction of the very fast services could support a change to the delivery requirements for the fast services and allow a number of potential providers who are currently unable to deliver 6-second services to participate in the fast services markets. These providers would be able to provide ancillary services under an 8- or 10-second service regime. Further, we understand that providers of the 2-second very fast frequency response would be able to maintain their response for the 8 or 10 seconds required in order to "hand-off" their service to the fast response services. By increasing the potential volumes of fast contingency frequency control, whilst still maintaining secure operation of the power system, we contend that this would increase competition in the fast raise and lower services. This should then deliver improved market outcomes in the form of lower overall costs to consumers. We suggest that this change would not require the need for re-registration for existing registered participants as AEMO's registration list[3] indicates that all fast service providers are also registered as slow (60 second) service providers.

Shell Energy considers that the proposed 1-second very fast FCAS design risks limiting competition in the very fast FCAS market under system normal conditions. We would prefer an approach that recognises the importance of competition in ancillary services markets and allows for a diversity in supply. This should assist in delivering lower cost supply, therefore providing benefits to energy consumers.

We note AEMO's additional report on further studies with increased FCAS volumes suggests that a 2-second service will be insufficient to maintain frequency within the Frequency Operating Standard (FOS) in South Australia and Queensland when they are islanded. However, we observe there are differing results between those presented in the MASS issues paper and the addendum for the same input assumptions. Table 5 of the Issues Paper shows that the R2 service was sufficient to keep frequency with the FOS in the mainland for both 2022 and 2026. However, table 2 of the addendum shows that an R2 service would breach the FOS in the mainland. AEMO's issues paper addendum also indicates that an R2 service in Queensland fails on the frequency nadir against the largest contingency reserve (LCR). Yet, the addendum does not discuss whether it passes the 1 Hz/sec rate of change of frequency (RoCoF) requirement. We consider this outcome to be important as the Reliability Panel is currently considering the Frequency Operating Standard and currently a RoCoF standard has yet to be set and may include different standards for an interconnected mainland or system islanding conditions. Shell Energy wishes to understand the discrepancy in results presented in the two documents. Based on the conflicting data AEMO has made available, it is not possible to accurately compare the outcomes of an R1 or R2 service.

In addition, when considering the impacts of regions operating on an islanded basis, the commissioning of Project Energy Connect by 2026 in South Australia, is likely to reduce the probability of the region operating in islanded conditions. It would require the failure of four transmission lines on two separate routes. As such, it would be a highly unlikely event.

[3] AEMO | Registration

We also query the allocation of 220 MW for the LCR in an islanded South Australian region. In practice when South Australia is islanded, we understand Pelican Point comes down to stable minimum load (180 MW). This means the LCR is 180 MW and not the 220 MW indicated in the Issues Paper. Similarly, in Queensland the LCR is listed as 750 MW when the region is islanded. However, when islanded, we also understand generation output at the 750 MW Kogan Creek power station, and other generating units in the 420 to 450 MW maximum capability range, is reduced to 350 MW due to the lack of FCAS raise contingency services overall. We also note that where an interconnector flow path becomes the LCR due to prior outage of reclassification, this risk is also managed by the invoking of constraints to limit interconnector flows to low levels. If these lower LCR values are used, which is more akin to what happens in islanding situations, it may be possible for a 1.5 or 1.25 multiple of the LCR to support a 2-second very fast service.

Regions operating on an islanded basis is already an infrequent event. As more transmission infrastructure is constructed, we would expect that islanding becomes increasingly rare. We consider that application of an LCR multiple during periods of infrequent regional islanding may be more economically efficient than imposing an outcome that exists all the time, in case an improbable event were to occur. We encourage AEMO to bear this in mind as it designs the requirements for the very fast FCAS service. From Shell Energy's perspective, AEMO appears to be taking a highly risk averse approach. This may not necessarily be in the best interests of consumers over the long term as it potentially reduces the scope for participation in the very fast FCAS market.

Shell Energy notes the issues raised in section 5.2.3 of the Paper. We consider AEMO has covered the issues associated with the proposed changes in detail. Consistent with our views already set out in this submission we also support AEMO's view that:

> *There is no obvious case to change the definitions of 'Raise Reference Frequency' and 'Lower Reference Frequency' for an interconnected system, which is by far the situation most commonly served by FCAS.*

Accordingly, we do not support any proposed change to the reference frequency levels.

AEMO has proposed a change to the assessment of contingency event time. The contingency event time was introduced to the MASS for the specific purpose of measuring the level of mandatory narrow band primary frequency response (MNBPFR) already supplied by an FCAS provider within the normal operating band. We supported this change.

AEMO has proposed removing the Contingency Event Time offset and reverting to using the Frequency Disturbance Time as the starting point for FCAS measurement. In addition, AEMO proposes to implement an additional calculation to compensate for an FCAS facility being significantly away from their true baseline due to MNBPFR action. Based on the example set out in Figure 25, it is not clear that AEMO's proposal will adequately calculate an FCAS facility's MNBPFR contribution when the facility has moved away from its energy target to maintain power system frequency close to 50 Hz. An FCAS facility may be significantly away from its energy target providing MNBPFR, even though system frequency is close to 50 Hz.

The proposed methodology is based on a measurement of contribution for system frequency away from the 50 Hz reference frequency. The closer system frequency is to 50 Hz, the lower the level of compensation allocated. As such, this methodology fails to compensate for the amount of MBBPFR already undertaken by the FCAS facility to maintain system frequency close to 50 Hz. This would be the case when a contingency event occurs close to the issue of a new dispatch target during periods of energy output ramping. In our view, any proposal to replace the Contingency Event Time offset with an alternative compensation method must adequately identify and compensate all the MNBPFR work done by the FCAS facility to maintain system frequency close to 50 Hz.

Finally, AEMO requests comments on the geographic diversity of very fast FCAS procurement. AEMO also indicates that a reasonable starting point could be to restrict FCAS from any region from being dispatched for more than 50 per cent of the total requirement. Shell Energy considers that this limit maybe too high. In theory, it

could allow for the entire very fast FCAS procurement to come from two regions. A limit of 40 per cent of the total requirement would mean that very fast FCAS would have to be procured from at least three regions. Shell Energy believes this would be a more prudent approach to ensure that there is sufficient diversity of supply. A limit of 30 per cent could also apply, which would ensure that very fact FCAS must be supplied from at least four regions which in our view would provide a superior approach with regards to balancing the power system as a whole and improve overall system resilience. Regardless of what percentage is determined, for an interconnected mainland, the existing common (global) clearing approach should continue to apply. Only under infrequent islanding or prior network outages impacting interconnector flows where a local FCAS requirement is invoked, should a local FCAS price be implemented.

For more detail on this submission, please contact Ben Pryor, Regulatory Affairs Policy Adviser (0437 305 547 or ben.pryor@shellenergy.com.au).

Yours sincerely

[signed]

Libby Hawker
GM, Regulatory Affairs & Compliance