Shell ENERGY

6 August 2021

James Lindley
Australian Energy Market Operator
Level 2, 20 Bond St
Sydney NSW 2001

Dear Mr Lindley

RE: Market Ancillary Services draft determination

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) Market Ancillary Services Specification (MASS) draft determination.

About Shell Energy in Australia

Shell Energy is Australia's largest dedicated supplier of business electricity. We deliver business energy solutions and innovation across a portfolio of gas, electricity, environmental products and energy productivity for commercial and industrial customers. The second largest electricity provider to commercial and industrial businesses in Australia[1], we offer integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. We also operate 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and are currently developing the 120 megawatt Gangarri solar energy development in Queensland. Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy.

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General comments

Shell Energy appreciates the work AEMO has undertaken as part of this review of the MASS. This review comes at a time of changing dynamics in all energy markets including frequency control ancillary services (FCAS). We note that there has been a substantial degree of change from the positions AEMO suggested in its consultation paper. While Shell Energy does not fully agree with all of them, it does show that AEMO is actively considering the input that various stakeholders have provided which is a very positive sign. The submission below details Shell Energy's view on a range of AEMO's draft positions.

Metering requirements

Shell Energy is disappointed in AEMO's decision to remove the slightly relaxed metering requirements that were used as part of the Virtual Power Plant (VPP) demonstrations for participation in fast FCAS markets. In our submission on the original issues paper, Shell Energy argued that small facilities (<1 MW) should be allowed to continue using sub 1-second metering as per the VPP trials as an alternative to high speed (50ms) on an ongoing basis. In our experience, there is a significant cost difference between even 100ms metering and 50ms metering.

[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 2011-2020.

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Imposing a requirement on small participants to install 50ms metering will act a barrier to their participation in fast FCAS markets.

AEMO asserts that one reason for imposing the 50ms metering requirement for participating in fast FCAS markets is that the marginal cost of installing 50ms metering rather than 100ms metering is relatively small and that this cost differential is likely to come down. Shell Energy disputes that this is a certain outcome. There is a real possibility that the marginal cost difference between installing a 50ms meter and a 100ms or 200ms meter remains high. The reason for this is that there are currently gate meters rated to deliver 100ms polling speeds. All 50ms meters currently need to be installed as new sub meters. While the meter cost may be $120 for one market participant, the costs for CTs and other ancillary equipment for a compliant sub-meter blows out the costs of this option materially and ruins the economics of participation for <1MW participants. To the extent that this difference does remain, the requirement for 50ms metering for fast FCAS participation is likely to limit participation from distributed energy resources (DER) where the available DER resource is <1MW and therefore competition. We consider that this outcome would fail to meet the National Electricity Objective (NEO).

Shell Energy's experience in deploying meters has shown us that the marginal cost of a 50ms meter compared to a 100ms meter is far higher than the $120 suggested in the draft determination. While some providers claim to be able to deliver 50ms metering around the $120 marginal cost, we understand that this is not widespread and does not include the costs of the additional equipment required for meter to be a compliant sub-meter with appropriate CTs and ancillary equipment. Further, given that this is a marginal cost, it does not necessarily represent the true cost of installing 50ms metering, which may in fact be far higher.

Although one provider has indicated they can deliver 50ms metering at a notional marginal cost of $120, AEMO must remain impartial and agnostic to technology. By insisting on 50ms metering on the back of this data point, AEMO risks forcing participants to not only develop their own $120 meter but also their enabling software on top. Hardware and software development is outside the core business of the majority market participants, and therefore while technically possible, is not a viable course of action for most. Therefore, the $120 marginal cost is in fact just a small proportion of a far higher cost to ensure the whole system is compliant with AEMO's requirements. This lack of competition from metering providers means that we expect that there will be very limited participation in the fast FCAS markets from small-scale DER, particularly sites with sub-500kW capacity. Further, we consider that AEMO's draft position risks designing a market that solely advantages one participant's business model, rather than a market that fosters competition across technology and providers.

The data presented by AEMO are clear that the error rate in using 1 second metering is significant compared to 50ms metering. However, the difference in maximum error between 100ms metering and 50ms is less significant. This is apparent in AEMO's proposed discount rates to apply during a transition period to 30 June 2023. AEMO proposes applying a 20 per cent discount to the quantity of fast FCAS where the metering resolution is lower than 200ms but higher than or equal to 1 second, and a 5 per cent discount to the quantity of fast FCAS where the metering resolution is lower than 50ms but higher than or equal to 200ms.

Given the small discount applied to 50-200ms metering range, Shell Energy therefore considers it would be reasonable to allow all participants- not just those who participated in VPP trials – to deploy meters with a resolution of 100ms on an ongoing basis with the discount rate applied. This should be permissible beyond existing participants in the VPP program (which is now closed) and available beyond the end of the proposed transitional period to 30 June 2023.

Ultimately, if AEMO's concern is that it requires accurate data once there is a critical mass of DER participation in fast FCAS markets then it needs to consider ways to build on requirements as overall DER or VPP participation increases. We do not consider that such participation will increase if there is a requirement for 50ms metering even for small participants.

One way to increase participation and also ensure that AEMO receives accurate data could be a staged approach in line with our proposal above to allow for 100ms metering with a discount applied. Small providers

(e.g. <5MW) could use 100ms metering on an ongoing basis until 50ms costs are demonstrably lower across the market. Should a provider wish to aggregate more than 5MW in a region then higher speed metering is a reasonable expectation. The rationale for this is that if there are multiple aggregated providers in a region, the combined capacity would be closer to a conventional thermal unit (e.g. gas turbine) and becomes material in the network. This proposal is similar to AEMO's original proposals for Option 1 in the consultation paper.

AEMO's proposed approach in the draft MASS to metering for DER participating in fast FCAS markets is likely to stymie development of the market and limit participation. Shell Energy struggles to see how this would meet the NEO, even with more accurate metering. Once it is evident that there is a greater degree of competition for 50ms metering and that prices have come down across the board, then it would be reasonable for AEMO to review the use of 100ms metering for small units.

Shell Energy strongly agrees with AEMO's proposal not to change the FCAS measurement point in the MASS. We agree with AEMO that power measurement at the connection point (or as close to as technically achievable) is the least distortionary way to accurately measure the FCAS delivered to the power system. We also consider that whilst the MASS allows for alternative measurement methodology, where AEMO rejects the alternative methodology, good regulatory practice would require AEMO to detail its reasons for doing so.

We recommend that section 5.3.1 of the MASS be amended to indicate:

> *All measurements of Local Frequency, Generation Amount and Load Amount must be taken at, or as close to as technically achievable, a relevant connection point.*
>
> *If an FCAS Provider considers that an alternative measurement methodology can provide AEMO the required data more simply and accurately, the FCAS Provider must request AEMO's approval prior to using it. AEMO may approve any alternative measurement methodology on such conditions as AEMO considers appropriate. Where AEMO withholds such approval, AEMO must provide the reasons for doing so to the FCAS Provider.*

General MASS Issues

Shell Energy is pleased to see that AEMO has agreed to several changes in the wording of the MASS similar to those Shell Energy proposed in our response to the consultation paper. In particular, we are pleased that AEMO has recognised that delays from AEMO's systems should not disadvantage FCAS providers. We are pleased that the AEMO has made it clear that the 8 second data latency requirement will apply only to internal systems.

In a similar vein, we argued that the maximum control response delay (CRD) of 150 seconds should apply from the time the AGC output change request is received at the facility. That is, it should exclude any delays resulting from AEMO's systems. Given this has not been included in the draft MASS, we propose that AEMO should add wording equivalent to that included in 10.4(a). That is, clause 10.4(e) should say:

> "maintain at all times a Control Response Delay (CRD) no greater than 150 seconds excluding external processing and communications delays; and".

In the consultation paper, AEMO proposed that the MASS require proportional FCAS controllers not affected by the Interim Primary Frequency Response Rule to have frequency deadbands no wider than +/-0.1 Hz. Shell Energy asked whether it would be acceptable for response to trigger at +/-0.15 Hz but sustain recovery until +/-0.10 Hz.

AEMO's draft decision is to defer changes to proportional controller deadbands until the AEMC completes its work on the primary frequency response (PFR) incentive arrangements rule change. This is currently scheduled to be completed in December 2021. Shell Energy considers that deferring decisions on deadband settings in the MASS is appropriate given AEMC's work is still underway. We will continue to engage with AEMO on the

treatment of deadband settings in the MASS and reiterate that there are likely to be lower cost but still effective options than simply applying a deadband of +/-0.1 Hz.

We recommend that Table 1 of the MASS include a definition for *enablement amount*.

It is unclear to Shell Energy that AEMO's amendments to section 2.2 represent a workable outcome and question the need for the change from the long-standing priority to contingency response. Due to the latency of delivery in AEMO's AGC dispatch instructions this amendment introduces an outcome where responding to AEMO's AGC signal could be detrimental to system frequency control. AEMO then sets out in section 10.3, a process that effectively reintroduces priority to contingency response via a complex and convoluted control system response that requires a service provider to effectively ignore signals from AEMO's AGC system if these are detrimental to system frequency. We recommend AEMO abandon its proposed changes to both section 2.2 and 10.3.

In the area of contingency FCAS, the details as set out in Section 3.1 could be read to imply that the service provider is obliged to continue to provide contingency services including in excess of its enablement amount until system frequency returns to within the 49.90 to 50.10 hertz range. We strongly recommend this section be amended to set out that service providers are only required to provide the service up to and including their enablement amount.

In the area of regulation FCAS, we remained concerned that the Draft MASS provided as part of the Draft Determination and Report fails to clearly set out a definition of the service to be provided. In Shell Energy's view the definition for regulation FCAS must clearly set out that provision of regulation FCAS is based on allowable deviation from a provider's energy market dispatch instruction. Failing to include a clear definition implies that AEMO's expectation is that a service provider must be able to dispatch to any point in the service provider's controllable range.

Shell Energy notes that the provision of mandatory primary frequency response (MPFR) does not require the provision of headroom, foot room or stored energy (reserves). In our view, the provisions laid out in section 10.3 tend to impose a form of mandatory provision of headroom, foot room or stored energy by requiring that regulation FCAS response be measured excluding MPFR. We disagree with this proposed change. Where a service provider provides MPFR in response to a frequency deviation, this may entail the use of reserves which have been procured for regulation FCAS and we consider that this use of regulation FCAS reserves must be accounted for. As indicated above, in Shell Energy's view the provision of regulation FCAS must be based on allowable deviation from the service provider's energy dispatch target.

Similarly, Shell Energy remains concerned that AEMO continues to restrict regulation FCAS response to only that provided in response to an AGC setpoint change request. We contend that PFR is also a suitable response and that regulation FCAS can be provided by combined primary and secondary (AGC) frequency response from the same service provider. This outcome is supported by historical power system frequency outcomes in the NEM pre-2010 where power system frequency was managed by a combined PFR/AGC regulation FCAS response.

With regards to section 10.4(a), we note AEMO's comments at the MASS Consultation Webinar on 23 June 2021 concerning the provision of specific additional SCADA data to AEMO that the data requirements as indicated will be subject to discussion and agreement between AEMO and the service provider. We look forward to seeing clarity regarding this in the final version of the MASS.

We are broadly supportive of AEMO's draft position not to impose a minimum ramp rate requirement on facilities. Shell Energy considers that it would be preferable for AEMO not to enable regulation secondary frequency response above the level which can be achieved by full deployment within 3 minutes rather than impose a new requirement on facilities already supplying the service.

AEMO's draft determination originally suggested that AEMO would look to apply a minimum bid size for different technologies. Shell Energy opposed this concept on the grounds that any minimum size should be

technology neutral and that there was no clear justification for the change. AEMO's draft determination helpfully sets out reasons for the change. AEMO has also revised its position and instead propose a minimum bid size of the larger of 1 MW or 1 per cent of the registered maximum capacity (rounded to the nearest MW). Shell Energy is comfortable with this change provided that the amount of response to be provided is a deviation from the energy dispatch target over the five-minute dispatch interval.

Shell Energy remains concerned with the proposal that service providers "maintain at all times a Setpoint Change Deadband greater than or equal to half of the facility's minimum Regulation FCAS offer quantity as defined in Sections 10.1 and 10.2" where Setpoint Change Deadband refers to "A value set for each Ancillary Service Facility in AEMO's AGC which indicates the minimum change in MW output AGC may request from that facility." As defined in Table 1 of the draft MASS. While AEMO has indicated that "AGC would not exceed the stable bid ramp"[3] there is nothing in the MASS to quantify that this is the case. We recommend that AEMO either amend the MASS to clearly indicate that AGC would not exceed the stable bid ramp rate as it applies to regulation FCAS or amend section 10.4(f) to indicate a minimum requirement of 20 per cent of the facility's minimum Regulation FCAS offer quantity. It is also unclear given the definition of the Setpoint Change Deadband, that the proposed change provides a workable outcome for regulation FCAS. Shell Energy would like to understand whether AEMO's AGC system would be limited by this to provide setpoint change signals above the 50 per cent threshold and how would the AGC system provide setpoint change signal below this threshold.

Shell Energy supports AEMO's proposal to develop an industry working group to further examine issues relating to ancillary services. We recommend that AEMO re-establish the ancillary services technical advisory group that has previously informed AEMO's work. We consider that this group can bring valuable expertise and raise issues that warrant deeper consideration. It will be important for group participants to be able to bring issues forward for AEMO to respond to. Shell Energy would be eager to participate in such a group.

Finally, we accept, but are disappointed in AEMO's rationale for not making any proactive changes to the MASS to enable the inclusion of very fast frequency services. We also note that AEMO has indicated it will undertake a separate consultation to give effect to new very fast FCAS services once the Australian Energy Market Commission (AEMC) has released its final determination on the Fast Frequency Response rule change. Shell Energy looks forward to engaging with AEMO on revisions to the MASS to enable the participation of very fast frequency services.

Following the release of the final determination on the MASS, we consider that AEMO should begin developing the requirements for very fast contingency FCAS services. We maintain that preliminary discussions on integrating very fast services could have formed part of this review. We look forward to engaging with AEMO on the development of the two new very fast FCAS services.

Yours sincerely

[signed]

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[3] AEMO, *Amendment of the Market Ancillary Services Specification – DER and General Consultation, Draft report and determination*, June 2021, p59.