Shell ENERGY

3 June 2021

Clare Stark
Australian Energy Market Commission
GPO Box 2603
SYDNEY NSW 2001

Dear Ms Stark

RE: Fast Frequency Response Market Ancillary Service draft determination

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the Australian Energy Market Commission's (AEMC) Fast Frequency Response (FFR) Market Ancillary Service 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 agrees with the AEMC's headline decision to make a rule change to introduce an FFR market into the National Electricity Market (NEM). We consider that the introduction of an FFR market is a sensible step to help manage frequency deviations as the quantum of synchronous generation decreases resulting in a decrease in synchronous (real) inertia and a continued increase in the volume of inverter-based generation and load in the power system.

In line with the AEMC's proposed terminology, we will refer to the proposed new 2-second service, as a "very fast" service, in order to differentiate it from the existing nomenclature of fast, slow and delayed.

In assessing the merits of this rule change, we strongly concur with the AEMC's assessment of the benefits of market-based approaches. The AEMC states:

> *"Where arrangements can function competitively through a market, they are more likely to support the economic dispatch of power system resources and help to reduce the long-term costs of power system operation in the long term interests of electricity consumers."*[3]

[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.

[3] AEMC, *Fast Frequency Response Market Ancillary Service rule change draft determination*, April 2021, p23.

The Commission adds:

> *"Spot market based provision of essential system services is preferred, where practicable, given it allows for full co-optimisation between services and energy, resulting in more efficient dispatch and pricing of services..."*[4]

Shell Energy agrees with these assessments of the strengths of market-based approaches. We consider that market-based approaches will be able to deliver a range of new system services in the NEM in the most efficient fashion at least cost to consumers and the introduction of two new ancillary services markets is no exception.

Implementation options

Shell Energy supports the proposed implementation option 1, which is to introduce the new very fast service as two new frequency control ancillary services (FCAS), bringing the total number of contingency FCAS markets to eight. We consider that this is administratively the simplest option. As demonstrated in the AEMC's analysis, the use of very fast frequency response will reduce the need to significantly increase the procurement of the current fast service, and will deliver more benefits as existing thermal generation retires and synchronous (real) inertia levels fall.

We share the concern of consumers and large users about the introduction of two new ancillary service markets leading to an increase in costs for consumers. Shell Energy would not be prepared to support a change that increased costs for no benefit to consumers. We consider that the AEMC's economic analysis of the impact of this rule change to be correct, in that it has the potential to lead to lower overall costs for consumers. As demonstrated in Appendix C, the use of very fast frequency response, offsets the need for a significant increase in the procurement levels for the 6-second frequency response which would be required in the future particularly at lower levels of synchronous inertia.

We don't support the AEMC's proposed Option 2, to consolidate the 6-second and 60-second services in order to retain six ancillary service markets following the introduction of the 2-second service. Shell Energy is concerned that this approach risks decreasing competition and increasing overall costs. We understand that a number of currently registered providers of 6-second services would be unable to provide the revised 60-second services, and vice versa. Combining the services may therefore see a reduction in the potential volume available to provide these combined services leading to increased overall costs. This was confirmed by AEMO in their advice to the AEMC and noted in the draft determination:

> *"At the same time, AEMO noted that there would be material impacts on the registration of FCAS providers under option 2b,"*[5] and *"The integration of FFR through reconfiguring the existing market ancillary service specifications is expected to have material impacts on registration outcomes for FCAS capable plant. In particular the proposal to consolidate the R6/L6 and R60/L60 services is expected to result in a reduction of registered capacity for plant capable of delivering this type of active power response."*[6]

Accordingly, we agree with the AEMC's view as set out in the draft determination that this option would reduce competition for provision of the combined service.

> *"However, the Commission considers that the consolidation of existing contingency services may result in a reduction of registered capacity for FCAS capable plant. Consultation with stakeholders and analysis by the AEMC indicates that the reduction in registered capacity*

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[4] AEMC, *op. cit.*, p iii.
[5] AEMC, *op. cit.*, p35
[6] AEMC, *op. cit.*, p36

for FCAS capable plant may represent a significant reduction in market capacity for the affected market ancillary services."[7]

In addition, there are few incentives available for variable renewable energy generators – wind and solar – to make 6-, or 60-second frequency response available to the market given the presence of many metered output contracts, the way large-scale generation certificates (LGCs) are created under the Renewable Energy Target and the fact that AEMO requires significantly more energy to be spilled than can be provided in frequency response.[8]

The draft determination highlights the challenges of consolidating the 6- and 60-second services, with lower registered volumes under the combined service. Shell Energy cautions that this analysis purely looks at the registered volumes and not at what may be available in real time. Facilities would have to be online, bidding to provide the services and have the available headroom, or foot room in order to actually deliver these services in real time, so the real-world impact could be far more significant than that indicated in the analysis undertaken to date. Further, with the exit of Liddell Power Station in 2022-23 from the system, Shell Energy considers this will have wider impacts on the ancillary services markets. While Liddell may not provide much in terms of frequency response at the moment, this will be lost once it exits the market. However, the reduction in energy output from Liddell may mean that other generators run at higher output to counter the loss of energy. Running at a higher level means there will be less headroom available, which in turn means that less raise ancillary services could be expected to be bid. Thus, we suggest a wider set of changes is needed to address potential shortages (or rather less competition) in the existing ancillary services markets.

An alternative model

Instead, we propose that in conjunction with the introduction of the 2-second markets, broader changes should be considered in order to improve overall FCAS market outcomes. Shell Energy proposes that as part of this rule change process, the AEMC recommend that AEMO review the delivery requirements for the existing 6-second (fast) service to determine if power system security could be maintained if the delivery time for the fast service could be changed to become 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 consider that this is best implemented alongside the new 2-second services.

Implementation timeframes risks and costs

Shell Energy wishes to see more clarity on the implementation timeframes for the rule change. The draft determination states that AEMO must revise the Market Ancillary Services Specification (MASS) within 18 months

[7] AEMC, *op. cit.*, p37

[8] For example, we understand a solar generator would have to spill 25 MW of energy in order to make 10 MW of fast ancillary services available.

of the date the rule change is made, and that the FFR market commence 3 years from the date that the rule is made. In both cases, we consider that these timeframes to be longer than that reasonably required and recommend the AEMC considers a shorter timeframe for introduction of these new markets.

AEMO is currently revising the MASS and are aware of the AEMC's draft determination for this rule change. As such, we consider that AEMO should be able to establish some preliminary measures for the introduction of the FFR market as part of the current MASS consultation noting AEMO has yet to release its Stage 1 Draft Determination. A more comprehensive revision of the MASS would then occur as part of Stage 2 of this consultation process or within 12 months of the rule change being made. For the commencement of the FFR market, Shell Energy contends that the market should start 2 years from the date the rule is made. Ideally, the FFR market should begin as soon as is reasonably possible. Even with our proposed shift of the R6/L6 markets to R8/L8 or R10/L10, we consider that it may be feasible for the markets to begin in around 2 years as these small changes would not in our view require alterations to the registration of current service providers for these services.

We note the AEMC's indication that these timeframes could be pushed forward as a result of the ESB's post-2025 work program via an additional rule change. However, Shell's strong preference is that the final rule targets a start date of 2 years after the rule is made with the fallback position of AEMO's lodging a rule change request if this timeline needs to be extended. While we understand that feedback on the draft rule may lead to a change in the timeframes, we would prefer to see a change in drafting to facilitate an earlier introduction. This would ensure that positive endeavours are applied to achieving the rule change as opposed to simply meandering towards its completion. Given the expected completion date of 15 July 2021 for this rule change, we consider that the new markets should start on 1 July 2023.

The Commission asks whether there are risks that may be borne by investors in newly developed FFR projects as one of the concerns behind their proposed extended 3-year implementation timeframe. We do not consider that there are any material risks for participants at this stage and that many will be ready to deliver very fast services as soon as AEMO allows for registration and the submission of bids for the new services.

The draft determination notes that AEMO has flagged risks around the service specification for very fast services, and that these may change over time. We would expect that initially, there will be a conservative approach adopted by AEMO in specifying the service requirements and that over time, revisions will relax this initial specification and allow for increased registrations and competition for very fast contingency FCAS. Therefore, we don't see there will be unmanageable risks associated with the service specification changing with time.

Similarly, AEMO have flagged that constraints associated with the provision of very fast response may initially be conservative on individual service providers as experience is gained with dispatch of the very fast services. Again, it is expected that these will be relaxed as experience in dispatch is acquired. As the initial procurement volumes of very fast response is expected to be small, we believe sufficient time exists for experience to be acquired before larger volumes of very fast response is required. This will also allow additional service providers to enter the market. Given these factors we don't see the creation of unmanageable risk for participants or consumers. In fact, we see less cost risk for consumers via the introduction of the new markets as opposed to out of market contracting for the services as proposed by AEMO.

We understand the AEMO's concerns around the impact of implementation costs with adding two new FCAS markets compared to consolidating the fast and slow FCAS markets. Shell Energy agrees that implementation costs are an important consideration. However, the AEMC also notes that AEMO has indicated that the benefits of this rule change will outweigh the implementation costs of either option. In summary, we doubt that the potentially lower costs involved in consolidating the 6- and 60-second services as opposed to establishing the two new markets would outweigh the risks associated of reducing supply of FCAS and therefore reduced competition in the new consolidated markets. Shell Energy is reasonably confident that the additional benefits of

two new FCAS markets will exceed the costs, particularly if the 6-second service is redefined as an 8 or 10-second service as we have proposed which will increase competition for provision of the fast services.

Interaction between FFR and mandatory PFR

Shell Energy remains concerned that as maintenance of headroom, foot room or stored energy is not a requirement of the mandatory primary frequency response (PFR) obligation, reserves ordinarily procured by AEMO for regulation and contingency FCAS response are instead being appropriated for mandatory PFR. The PFR obligation is therefore reducing the volume of regulation and contingency FCAS response able to automatically dispatch in response to a contingency or frequency deviation event. This may leave the power system exposed to a lack of responsive reserves when these reserves are required. We look forward to working thorough the next stage of the PFR rule change process to establish a market for the procurement of reserves for PFR.

Conclusion

Shell Energy supports the move to introduce two new FCAS markets for the delivery of very fast contingency response. We consider that this should coincide with a redefinition of the existing fast service to an 8- or 10-second response compared to the current 6-second service. Making these two changes together would increase the potential suppliers available to provide the fast services, increasing competition and delivering better outcomes for consumers. We also expect, in line with the AEMC's analysis, that the introduction of the very fast frequency response services will remove the need to significantly increase the procurement quantity of fast services, particularly as synchronous inertia reduces with the retirement of synchronous generators and provision of FCAS by synchronous generators also reduces, thereby reducing overall costs to consumers.

We do not consider that the proposed implementation option 2, which would see the existing fast and slow services consolidated, is in the long-term interests of consumers. Shell Energy contends that combining these services in order to retain six contingency FCAS markets poses a significant risk of reducing the potential volume of FCAS response in both the new proposed fast and slow services. This is because there are some current and potential 6-second providers that would be unable to meet the requirements of the revised 60-second service where service provision would need to be sustained for a longer period, and a number of existing 60-second providers which are incapable of providing the revised 60-second response with an earlier start time. This will be exacerbated by the closure of thermal plant like Liddell, as the remaining thermal plant will likely need to run at higher output levels and therefore will have less headroom available to provide frequency response.

Finally, we recommend that the final rule allow for an earlier implementation time than three years. We consider it should be feasible to implement this rule change sooner than 2024. While the AEMC acknowledges this may be the case, the wording of the draft rule does not allow for an earlier implementation date. Our preference is for the final determination to set an implementation date of 1 July 2023 with a review date in mid-December 2022 with AEMO to lodge a rule change to extend the commencement date if deemed necessary.

Please contact me if you would like to discuss this submission further.

Yours sincerely

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