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To AEMO

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Reference Notice of First Stage Consultation (Rule 8.9): Distributed Energy Resources (DER) operationalisation under Market Ancillary Service Specification (MASS) and general updates to the MASS  
Submitted via email

Date 11 March 2021

**Subject MASS Consultation**

### Overview:

Infigen Energy (Infigen) welcomes the opportunity to make a submission. Infigen delivers reliable energy to customers through a portfolio of wind capacity across New South Wales, South Australia, Victoria and Western Australia, including both vertical integrated assets and PPAs. Infigen also owns and operates a portfolio of firming capacity, including a 123 MW open cycle gas turbine in NSW and 120 MW of dual fuel peaking capacity in SA, and a 25 MW / 52 MWh battery in SA. Our pipeline has projects at differing stages of development covering wind, solar and batteries. This broad portfolio of assets has allowed us to retail electricity to over 400 metered sites to some of Australia’s most iconic large energy users.

Infigen supports AEMO’s motivations and planned process for future consultation on the MASS within the wider context of market rule changes and frequency control framework reviews.

Infigen’s comments for this first stage of the MASS consultation are provided only for the General MASS review component. Our key comments are:

- there needs to be a holistic review of the MASS considering the overlap, definition, and procurement quantity of existing FCAS markets, future FFR and PFR markets, role of proportional and switched controllers, alongside a review of the FOS; and
- the MASS is a technical document reflecting technical requirements; however, it has material impacts on costs to consumers and generators. As such, it may be necessary to create a stronger link between the MASS and the Reliability Panel, including how the Frequency Operating Standard is actioned.

Infigen has provided some more detailed comments to AEMO’s questions below.

## Consultation Questions for General MASS Issues

9. Does the proposed reformat of the MASS (see Attachment 1) make for improved readability and understanding? What other improvements in the form and drafting of the MASS could be beneficial? If you consider the reformatted MASS may have materially changed the substantive meaning of the MASS v6.0, please also bring this to our attention.

Infigen agrees that the proposed reformatting makes for improved readability.

An error has been introduced in Table 4 within the Local Frequency Measurement Range data row, where the columns of 'Margin of error' and 'Resolution' read down the page, while these should read across the page.

10. Clarification of FOS references – please provide any feedback on the proposal to clarify that FOS terms relate to Table A.1 of the FOS, and any other terms that have ambiguous values.

Infigen agrees with the proposal to clarify variable FOS terms should refer to the specified tables unless stated otherwise. There are no other ambiguous terms within the MASS that need further clarification.

### 11. Frequency responsiveness of FCAS:

- a. What would be involved in ensuring that non-frequency responsive facilities:
  - i. Respond only when enabled in the relevant FCAS market(s)?
  - ii. Do not deliver significantly more than market enablement (for example, >50%)?  
Do any alternative options exist to manage over-delivery?
- b. Please provide feedback on the proposed revised trigger ranges for switching controllers set out in Table 1 and Table 2 of section 3.3.

Infigen has no feedback relating to non-frequency responsive facilities.

- c. Please provide feedback on the proposal in section 3.3 to require proportional controllers to set deadbands no wider than  $\pm 0.1$  Hz.

The purpose of the MASS is to action the FOS. While AEMO has raised a theoretically correct point (deadbands at the edge of the NOFB cannot bring the frequency back *into* the NOFB), Infigen is not aware of any modelling indicating that this change is necessary to achieve the FOS.

Similarly, AEMO has not considered the costs and benefits of moving deadbands to 0.1 Hz rather than the edge of the NOFB. More frequent activation of resources will increase the cost of provision, which will ultimately be borne by consumers. There may need to be a greater role for the Reliability Panel in the MASS to ensure consumers are protected.

We also note this potentially conflicts with the proposal below to require Delayed FCAS providers to be switched controllers.

In our view, there needs to be a holistic review of the MASS (as discussed in response to question 14), considering the overlap, definition, and procurement quantity of existing FCAS markets, future FFR and PFR markets, role of proportional and switched controllers, and a review of the FOS.

We note that frequency recovery within the NOFB (to +/- 0.1Hz or some other deviation from 50Hz) has been shown to be adequately supplied by PFR to date, highlighting the value of this service that should be compensated through market mechanisms. Regulation FCAS and the 5-minute dispatch of energy should also be considered for their role in frequency recovery within the NOFB to ensure that they are being utilised appropriately. Any change in requirements for proportional contingency FCAS deadbands should not be made due to adjustments made for PFR for other generators – it should be made if there is an ongoing concern around the delivery of contingency FCAS within the NOFB.

## 12. Co-ordination of different FCAS and PFR:

- a. Referencing the list of co-ordination matters in section 3.4, are there other co-ordination matters AEMO should seek to address in the MASS?

Infigen has not identified any other co-ordination matters that should be addressed in the MASS, provided that the interactions between PFR / Contingency FCAS controls and AGC controls also addresses AGC targets for energy dispatch.

For clarity, it should also be noted that for some generators that provide a proportional controller response, the same controls will be implemented for both PFR and Contingency FCAS, so the PFR will be provided as a component of the overall proportional response.

- b. Does the list of clarifications on co-ordination of Contingency FCAS/PFR controls with AGC controls in Section 3.4 provide a reasonable balance between guidance and flexibility for plant control design?

Infigen have no objections to the control clarifications outlined. However, for increased clarity, Figure 8 could also include the treatment of any energy target that the plant could be subject to and how this will impact upon the FCAS facility output.

## 13. Regulation FCAS requirements:

- a. Are the requirements and proposed settings listed in section 3.5 adequate and achievable? In particular, can PFR (separate to other plant targets) be determined readily and communicated to AEMO?

Infigen is in general agreement with the proposed requirements and settings listed in Section 3.5, with the following comments and concerns:

- Further clarifications on the data latency requirement should be provided, namely whether the maximum 8 second data latency is in reference to the internal control systems or external communications between the facility and AEMO. If it is in reference to external communications, then these are typically outside of the control of individual participants and the responsibility of TNSPs and/or AEMO, which would limit the ability for participants to rectify latency issues;
- AEMO's motivation for implementing a minimum bid size for different generators should be provided, detailing the clear need for the minimum bid sizes and how these were calculated. The implementation of minimum bid sizes may also cause perverse market outcomes if every

generator has a minimum cleared level, while also adding complexity to the co-optimisation of regulation FCAS and other services would be introduced to the NEM;

- The Local PFR measurement should include any response provided for contingency FCAS, and instead represent the MW output of the facility based on its total local frequency response;
- AEMO should provide further commentary on the use of these required measurements and why they are required within the context of providing regulation FCAS (e.g. battery state of charge information). This will help identify if AEMO's proposed use of data supplied by a facility could create unforeseen issues; and
- If possible, AEMO should provide the feedback from the independent AGC experts which lead to them determining the proposed regulation FCAS requirements for greater transparency.

b. Would a 1-year phase-in period for existing Regulation FCAS providers be satisfactory?

c. Do Consulted Persons believe that a 2-year Regulation FCAS testing cycle strike the right balance of stringency and reasonableness?

Infigen has no issues with the above timelines for implementing and testing the proposed regulation FCAS requirements.

a. Clarification of requirements for Delayed FCAS – please consider the implications from your perspective of clarifying that Delayed FCAS controls may be of a switched type only (rather than also proportional), and, whether other factors in addition to those outlined in section 3.6 need to be considered.

From Infigen's perspective, the implication of Delayed FCAS being provided by switched type only controls would mean that battery facilities under their current configurations would be unable to provide this service. Given the high penetration of battery systems in the contingency FCAS markets (~26% from the Quarterly Energy Dynamics Q4 2020 report) and the increasing share that batteries will have into the future, the cost impacts of excluding this capacity from a subset of the contingency FCAS markets would need to be thoroughly investigated and justified in any decision made.

Again, we suggest that this needs to be considered in the context of a more holistic MASS review – clearly defining the FOS, and undertaking quantitative and qualitative analysis of the services required. Further factors should also be considered alongside those raised in the consultation paper. These are:

- Re-examining the problem statement issued by AEMO in the context of mandatory PFR implementation, with generator deadband settings for a number of facilities being much tighter than the acknowledged +/-0.15Hz.
- Considering the enablement of the delayed FCAS response alongside the other mechanisms that AEMO has available for recovering frequency within 5 minutes, including PFR, regulation FCAS and the dispatch of the energy market, to provide an adequate frequency recovery at least cost to the market.
- AEMO providing a clear definition of the switched type responses it would accept for a delayed FCAS response, to allow for potential providers to innovate and develop a least-cost solution if required.

- Whether the MASS should specify that the role of delayed FCAS is to return frequency to 50Hz in the context of both:
  - Existing additional services, including PFR, regulation FCAS and the dispatch of the energy market, that could be procured by AEMO to return frequency to 50Hz, such that the obligation to return frequency to 50Hz should not only rest with delayed FCAS; and
  - returning frequency to 50Hz may not be required to maintain system stability, and a new frequency return requirement could be established (such as +/-0.1Hz to be aligned with other frequency return requirements).

14. Regarding issues associated with the pending FFR rule change canvassed in section 3.7 and any other rule changes of concern, AEMO wishes to hear from Consulted Persons on the following issues, which would be used to help scope future changes to the MASS:

- a. What MASS issues they consider should be addressed in subsequent reviews, including if possible, provide reasoning as to why these issues are important.

As noted previously, in our view there needs to be a holistic review of the MASS considering the overlap, definition, and procurement quantity of existing FCAS markets, future FFR and PFR markets, role of proportional and switched controllers, alongside a review of the FOS. As compliance with the FOS should be delivered through the services outlined in the MASS, the alignment of the FOS and the MASS is critical for ensuring that the power system is able to operate in a secure manner.

Within this holistic review, Infigen believes that the following non-exhaustive list of topics should be discussed (in addition to those identified in the consultation paper):

- Integration of new market services (such as FFR and PFR) within the MASS, as well as discussing the ‘scope’ of the MASS in incorporating potential new markets. The MASS is not a suitable document to specify potential new markets such as inertial response or operating reserves;
- How the quantity of services to be procured by AEMO are determined, particularly of regulation FCAS and the “overlap” of services (see Infigen’s submission to the AEMC<sup>1</sup>);
- Whether the MASS is the appropriate forum to consider the **Maximum frequency response rate** and **Area based limitations on FCAS concerns** raised by AEMO in section 3.7 of the consultation paper;
- How the process of re-registering facilities that provide contingency FCAS could be improved to allow for dynamic changes in the registered capacities to better balance periodic shortfalls in contingency FCAS market supply (particularly in islanded conditions); and
- Appropriate scaling of registered contingency FCAS capacities through volume-weighted responses.

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<sup>1</sup> [https://www.aemc.gov.au/sites/default/files/documents/rule\\_change\\_submission\\_-\\_erc0263\\_erc0295\\_-\\_infigen\\_energy\\_-\\_20210207.pdf](https://www.aemc.gov.au/sites/default/files/documents/rule_change_submission_-_erc0263_erc0295_-_infigen_energy_-_20210207.pdf)

b. How any other desirable changes to the MASS could be managed in the context of ongoing rule changes.

The MASS is a technical document reflecting technical requirements; however, it has material impacts on costs to consumers and generators. As such, it may be necessary to create a stronger link between the MASS and the Reliability Panel, including how the Frequency Operating Standard is actioned.

### Conclusion:

We look forward to the opportunity to continue to engage with the AEMO. If you would like to discuss this submission, please contact Dr Joel Gilmore (Regulator Affairs Manager) on [joel.gilmore@infigenenergy.com](mailto:joel.gilmore@infigenenergy.com) or 0411 267 044.

Yours sincerely

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