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12 February 2020

Mr. John Pierce AO
Chairman
Australian Energy Market Commission
Level 6, 201 Elizabeth Street
Sydney NSW 2000

Subject: ERC0274 Mandatory Primary Frequency Response

Dear Mr. Pierce,

Goldwind Australia Pty Ltd (Goldwind) welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC's) rule change proposal ERC0274 regarding mandatory Primary Frequency Response (PFR). Please find its comments and suggestions in the following paragraphs.

Goldwind supports the AEMC in improving frequency regulation within the NEM. Goldwind also supports the AEMC's approach of implementing an immediate response to the problem to be followed by a more considered solution at the end of the sunset period. The proposed process will ensure that the issues are corrected immediately but, longer term, the NER will include a methodology for frequency regulation that has been fully tested against the NEO.

The short term of the sunset period (three years) is considered acceptable by Goldwind but this does lead to an issue that Goldwind would like addressed in the rule change. Any Participant introducing a control system to respond to the requirement of PFR before the sunset period expires should not be required to submit models to AEMO or the Network Service Providers (NSPs). The burden of developing and releasing PSCAD and PSS/E models of additional control systems that may or may not be required into the future is counterproductive. It would redirect Original Equipment Manufacturer (OEM) resources from working on product developments that directly assist Developers and Registered Participants to both improve generator performance and reduce costs. Such a distraction for a short-term requirement would be contrary to the NEO over the longer term. Goldwind recommends that the AEMC include a rule that excuses generators from the provision of models relating to PFR until the sunset period is over (three years). The new rules developed during the sunset period can further consider the requirements for modelling as part of the future frequency regulation rules.

Additionally, the rapid implementation of the rule change should not cause delays to the energisation of new projects. There are currently many projects with connection agreements that are preparing to register in the NEM. Goldwind recommends that the implementation rules clause 11.[XXX].2(c)(3) of the Draft Amendment also require AEMO to state the period of time after commissioning (e.g. six months) that the PFR capability

must be enabled for newly registered plant. New generators will not then be forced add PFR equipment into their construction schedules immediately but can choose a time before or after energisation to include such measures. This will prevent delays to energisation (and associated costs) that Participants would bear if they were forced to change designs and install PFR prior to commissioning.

Goldwind was supportive of AEMO's proposal that generators be compensated for the implementation of PFR capability and recommends that the AEMC reconsider its inclusion in the Rule Change. There is obviously value to the system for the provision of PFR or this rule change would not be being considered by the AEMC. However, under the proposed rule change, generators alone are expected to bear the costs of delivering that value. Most of the generators that will need to add equipment to be able to deliver PFR are semi-scheduled generators as scheduled generators tend to be installed with governors. Over the three years before the sunset period expires, the market expects that semi-scheduled generators will remain price takers rather than price setters. There is little or no opportunity for them to recoup the costs through the market when they are price takers.

The concept of compensation as laid out provides AEMO with the opportunity to use its discretion to decline PFR services if the costs exceed the benefits. This is a simple method whereby parties demonstrate the cost of implementing the service, and AEMO assess it and accepts or rejects based on simple, financial metrics. This simplicity is not matched by the bureaucracy of requiring generators to interpret AEMO's criteria for variations or exemptions as described in the proposed clause 4.4.2A(b)(3), propose them to AEMO for its adjudication on the interpretation, followed by the provision or rejection of the requested exemption. The simple acceptance or rejection of a quote to install the required equipment would also reduce the delays in decisions and potential disagreements between parties.

One of the many concepts that Goldwind is considering for the provision of PFR is using the inertia of its rotor and blades to absorb/deliver additional power over a short period to provide that PFR. Implementation of PFR using this concept could mean that if the generator was operating at full capacity and the frequency dropped, additional power would be delivered by the generator. Such additional power delivery would mean that the generator exceeds the power limit set in its Generator Performance Standards (GPS). Additionally there are other requirements in the GPS that may not be met when the PFR system acts. These include the reactive power capability requirement, harmonics requirements, voltage flicker requirements, etc. Goldwind recommends that the AEMC includes a rule that exempts generators from strict compliance with the GPS when the PFR equipment is actively controlling frequency.

As mentioned at the beginning of this letter, Goldwind supports the AEMC's in its development of a long-term solution to frequency regulation. Such a long-term solution would be able to allow generators to consider the long term costs versus benefits for offering PFR. The use of mechanical inertia described in the paragraph above will result in additional wear on the generators, leading to higher maintenance and renewal costs. Such costs are not considered in the initial proposal but Goldwind recommends that the AEMC considers them in any proposal for after the sunset period.

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Goldwind is also keen to contribute to the AEMC's work on the long-term solution to frequency regulation after the sunset period. Consideration of the full range of solutions identified through the Frequency Control Frameworks Review is important as there will always be decisions to be made by developers and OEMs on the most economic use of their resources. For example, if inertia is used to provide PFR, it may not be able to be used as Fast Frequency Response (which is a requirement in South Australia) so other equipment may need to be considered. The developer and OEM will need to be able to prioritise and manage the delivery of all services to the NEM and well considered changes to the NER will assist with those decisions.

Thank you again for the opportunity to contribute to this consultation. Should you have any questions regarding this contribution, please contact the undersigned.

Sincerely,

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