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Dear Adam

## **Licensing recommendations - Hornsdale Wind Farm Stage 2**

Further to my letter dated 29 November 2016, this letter provides an update on AEMO's recommendations on the conditions that ESCOSA should apply in relation to HWF 2 Pty Ltd's ('HWF2's) application for a generator licence.

We have received HWF2's PSCAD model and completed the validation works. We are satisfied that the model adequately demonstrates that the proposed plant will meet its performance obligations under expected weak grid conditions. We therefore consider that HWF2 meets the existing special licence conditions for wind generation in South Australia.

However, we consider HWF2, and all future licence approvals, should be subject to additional licence conditions which take account of the technical changes affecting the South Australian power system. The need for these measures has become evident following the strong growth in the connection of asynchronous generating plant in South Australia and other events such as the 2016 system black.

As you know, we are working with ESCOSA to complete a review of SA special licence conditions for wind generation. This review presents an opportunity to review the risks associated with the changing generation mix and to explore the costs and benefits of potential mitigating actions. To complete the review and establish new licence conditions will take time. AEMO considers that, if generators wish to obtain a licence in the meantime, more stringent or additional licence conditions should be applied.

Our two main concerns relate to the ability of generation to: (1) withstand high Rate of Change of Frequency (RoCoF) events and (2) provide frequency control services.

With respect to item 1, we recommend that HWF2 Australia should be capable of meeting both the automatic and minimum access conditions set out in Schedule 5.2.5.3 of the National Electricity Rules (NER). To this end, we recommend that ESCOSA imposes a licence condition that requires HWF2 to warrant that its plant remains in continuous uninterrupted operation as defined under the NER with a level of RoCoF of up to 4Hz/s for a period of at least 250 ms and up to 1Hz/s for one second.

With respect to item 2, we note that the reduction in the availability of Frequency Control Ancillary Services (FCAS) from plant in South Australia has the potential to impact South Australian customers, both in terms of price and security of supply. In the main review of SA special licence conditions for wind generation, we expect to recommend that ESCOSA adopts a number of substantive additional licence conditions with respect to FCAS provision.

It would be beneficial for ESCOSA to adopt interim measures to ensure that new generators do not exacerbate existing issues with respect to reduced FCAS availability. As such, we recommend that ESCOSA requires HWF2 to:

- implement an automatic generation control system which is compliant to AEMO's requirements. The response of the AGC system is to be tested and tuned to AEMO's systems;
- use best endeavours to register with AEMO to provide all frequency control ancillary services as specified in the National Electricity Rules;
- demonstrate the ability of the windfarm to provide each ancillary service to through a program of testing and trial operation to be developed by AEMO in consultation with HWF2 and approved by the Commission in writing and to include the following:
  - contingency lower capability to be tested and then enabled to provide services for at least 6 months;
  - contingency raise capability to be tested and then enabled for a trial period of at least 48 hours;
  - regulation raise and lower to be tested and tuned and then enabled for a trial period of at least 48 hours.

The above trials and testing are to be complete within one year of the date that the wind farm commences operation.

The objective of AEMO's recommendation is to ensure sufficient FCAS ancillary services are available within the South Australian region. It would also enable testing of market systems and to demonstrate the capability of wind plant to provide FCAS services using NEM systems. AEMO proposes to work with HWF2 to ensure that this requirement is no more onerous than is reasonably necessary to accomplish these objectives.

We note that there are potential commercial benefits to HWF2 in providing FCAS, however, ongoing participation in an FCAS market is a commercial decision for the generator.

Our goal with these interim measures is to develop a proportionate response that protects the interests of customers, pending the results of ESCOSA's comprehensive review. Please contact me directly if you have further questions in relation to these matters.

Yours sincerely



David Swift  
**Executive General Manager- Corporate Development**