

Determination on Application for Exemption from Certain Requirements of the Technical Rules Submitted by Western Power

Connection of the Nilgen Wind Farm

8 January 2013

Economic Regulation Authority

WESTERN AUSTRALIA

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Contents

DECISION	1
REASONS	3
Access Code Requirements	3
Western Power’s Application for Exemption	3
Western Power’s Assessment	3
Public Submissions	4
Authority’s Considerations	4

DECISION

1. Western Power has submitted an application to the Economic Regulation Authority (**Authority**) for exemption from compliance with certain requirements of its Technical Rules in relation to the connection of the Nilgen Wind Farm (**Nilgen**). The application is made under section 12.40 of the *Electricity Networks Access Code 2004* (**Access Code**).
2. Technical Rules consist of the standards, procedures and planning criteria governing the construction and operation of an electricity network and are required under the Access Code for all covered networks. The Authority first approved and published Western Power's Technical Rules on 26 April 2007 which became effective from 1 July 2007. Revisions to the Technical Rules were approved by the Authority on 10 November 2011 and took effect from 23 December 2011¹.
3. Under section 12.40 of the Access Code, a service provider may apply to the Authority for an exemption from one or more requirements of its technical rules which apply to the service provider and all applicants, users and controllers of the covered network.
4. Section 12.41 of the Access Code requires the Authority to determine an application as soon as practicable as a reasonable and prudent person on reasonable technical and operational grounds. The Authority must also have regard to the effect the proposed exemption will have on the service provider and users of the network and any interconnected network. The Authority must grant the exemption if it determines that in all the circumstances, the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages.
5. Under section 12.46 of the Access Code, the Authority may consult the public in accordance with Appendix 7. The Authority issued an invitation for submissions on 29 November 2012, with a closing date for submissions of 13 December 2012. As part of this consultation, the Authority prepared an issues paper to assist interested parties. Four submissions were received and have been published on the Authority's website.
6. After consideration of Western Power's application for exemption to the Technical Rules, independent advice from the Authority's technical advisor and public submissions, the Authority has determined that the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages and, therefore, approves the application.
7. The exemption granted is:
 - Western Power is exempted from complying with the requirements of clause 2.5.2.2, of the Technical Rules with respect to the connection of the Nilgen Wind Farm (107.25 MW). The exemption will allow Western Power to provide Nilgen with a constrained connection. The output of the Nilgen wind farm will be runback (reduced) as required to prevent a pre-contingent overloading as well as contingent (N-1) overloading in the network. The exemption will apply for an indefinite period unless revoked under the provisions of the *Electricity Networks Access Code 2004*.

¹ Economic Regulation Authority website:
http://www.erawa.com.au/2/156/48/electricity_access__technical_rules.pm

8. The exemption is granted on the provision that the proposed connection arrangement has no adverse impact on the level of safety and reliability to other network users.

REASONS

Access Code Requirements

9. Section 12.41 of the Access Code requires the Authority to determine an application as soon as practicable as a reasonable and prudent person on reasonable technical and operational grounds and having regard to the effect the proposed exemption will have on the service provider and users of the network and any interconnected network. The Authority must grant the exemption if it determines that, in all the circumstances, the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages.
10. Under section 12.43 of the Access Code, an exemption:
 - may be granted for a specified period or indefinitely;
 - may be subject to any reasonable conditions the service provider considers fit, in which case the network persons must comply with the conditions, or may be unconditional; and
 - may be varied or revoked by the service provider after reasonable notice to the network persons.

Western Power's Application for Exemption

11. Western Power submitted an application for an exemption from compliance with the Technical Rules to the Authority on 6 November 2012.
12. The application is for an exemption from compliance with clause 2.5.2.2 (requirement to base reliability on an N-1 criterion²) in relation to the connection of Nilgen, which has a declared sent out capacity (**DSOC**) of 107.25 MW and allows the connection with a lower N-0 reliability criterion.

Western Power's Assessment

13. Western Power investigated a number of possible options to connect Nilgen to the Western Power network. The results indicated that network augmentation options up to \$60 million would still not allow the Nilgen connection to comply with clause 2.5.2.2 and would involve a constrained connection.
14. Western Power identified two minor network reinforcement options that provide a constrained connection for Nilgen (at a total cost of \$1.5 million) which was financially acceptable to Nilgen.
15. Western Power considers that a technical rules exemption is necessary as it will allow it to provide Nilgen with a constrained connection and the output of Nilgen will be runback (reduced) as required to prevent a pre-contingent (N-0) overloading as well as a contingent (N-1) overloading in the network.
16. Western Power has undertaken studies that identified that under the maximum generation scenario, where all the existing generators in the North Country and

² Terminology such as "N-0" and "N-1" is commonly used for describing the level of security of the transmission system.

Northern Terminal load areas are exporting at their DSOC, there is a potential overloading issue in the Neerabup load area. Western Power notes that there is a very low probability of this scenario occurring. Nevertheless, connection of the Nilgen wind farm increases this probability slightly.

17. The proposed connection arrangement between Western Power and Nilgen incorporates the following:
 - the point of connection to be at a new Nilgen substation connected by cutting in and out of the existing Pinjar to Cataby 132 kV line;
 - up rating of the Joondalup to Wanneroo 132 kV line;
 - installation of dynamic line rating equipment on the Mullaloo to Joondalup 132 kV line to reduce the probability of runback events; and
 - installation of a runback scheme for Nilgen to prevent pre-contingent overloading as well as contingent (N-1) overloading in the network.
18. Based on balancing Nilgen's requirements and current network considerations, Western Power has proposed to provide Nilgen with a constrained connection subject to Western Power's Application and Queuing Policy (**AQP**).
19. In its application, Western Power provided a copy of a letter from Nilgen indicating that it accepted the proposed connection arrangement and understands the potential financial impact from the constrained connection. Western Power anticipates that the runback hours for the wind farm with the proposed connection arrangement are extremely low, and Western Power notes they are immaterial to the operation of Nilgen.

Public Submissions

20. Under section 12.46 of the Access Code, the Authority may consult the public in accordance with Appendix 7. The Authority issued an invitation for submissions on 29 November 2012, with a closing date for submissions of 13 December 2012. Submissions were received from Community Electricity, Wind Prospect Pty Ltd, Carpenter Beef and Verve Energy and have been published on the Authority's website. All four submissions supported Western Power's exemption application.
21. Verve Energy qualified its support for the application in that if the exemption application for Nilgen is approved, then no other party should be disadvantaged with regards to the transitioning to a new AQP due to come into force as of 1 February 2013.

Authority's Considerations

22. In considering whether to approve Western Power's applications for exemption from certain aspects of the Technical Rules, the Authority must, having regard to the effect the proposed exemption will have on the service provider and users of the network and any interconnected network, grant the exemption if it determines that in all the circumstances, the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages.
23. The Authority's technical adviser has carried out a high level review of Western Power's application and noted that:

*Nilgen Windfarm Pty Ltd (Nilgen) has submitted two connection applications to Western Power for connection of a wind farm with a total contracted Declared Send Out Capacity (DSOC) of 107.25 MW to the 132 kV network in the North Country load area. The wind farm is located at Lancelin, approximately 130 km north of Perth, and it is proposed that it will be connected to the Perth-Cataby 81 132 kV circuit. It will be constructed in two stages, the first of 52.25 MW and the second of 55 MW, but it is not clear at this stage when construction of the first stage will commence.*³

24. The Authority notes that Western Power identified a number of network reinforcement options to address the potential line overloads in the Neerabup area and, that options with costs of around \$60 million would still not facilitate compliance with clause 2.5.2.2 of the Technical Rules.
25. The Authority also notes that as a result no feasible option was identified by Western Power that could provide Nilgen with an unconstrained connection while at the same time being financially acceptable to Nilgen.
26. As a result, and in order to accommodate the Nilgen connection subject to Western Power's AQP, Western Power is proposing to:
 - *undertake minor strategic upgrades to the 132 kV network between Neerabup and Northern Terminal to provide a small increase in power transfer capacity. These include upgrading the Joondalup-Wanneroo 132 kV line by increasing its ground clearance and installing dynamic line rating on the Joondalup-Mullaloo line; and*
 - *installing a runback scheme to limit the output of the Nilgen wind farm at times when the Neerabup and Pinjar power stations are dispatched to a level that there could be insufficient power transfer capacity south of Neerabup to accommodate Nilgen and also when the power transfer capacity across the constraint is less than normal because a transmission element is out of service.*⁴
27. The Authority's technical adviser notes that clause 2.5.2.2:

*... should not be used as a basis for preventing a generator connecting to the network subject to operating constraints. Where it is in the interests of consumers that a new generator connects to the network and where the proponent is prepared to accept operating restrictions necessary to address network capacity limitations or ensure the security of the power system, the proponent should generally be permitted to connect. Other requirements of the Technical Rules should ensure that other network users are not disadvantaged if a generator is connected to the network subject to constrained operation.*⁵
28. As noted in paragraph 19, Nilgen has provided confirmation that it accepts the proposed connection arrangement and understands the potential financial impact from the constrained connection.

³ Review of Western Power's Application for a Technical Rules Exemption for Nilgen Wind Farm, Geoff Brown & Associates, January 2013, p.1.

⁴ Review of Western Power's Application for a Technical Rules Exemption for Nilgen Wind Farm, Geoff Brown & Associates, January 2013, p. 1.

⁵ Review of Western Power's Application for a Technical Rules Exemption for Nilgen Wind Farm, Geoff Brown & Associates, January 2013, p. 4.

29. Western Power has also indicated that the proposed connection arrangement has no adverse impact on the level of safety and reliability to the other network users and does not stifle any future strategic network developments.⁶
30. The Authority has investigated the matters raised by Verve Energy with regards to the AQP with Western Power. The new AQP that all parties will be subject to commences from 1 February 2013. Until this time all parties are still bound by the existing AQP that is in place and there is no transitional process. As all parties are expected to be treated the same by Western Power, the Authority is of the opinion that no other parties should be disadvantaged via the AQP by providing this technical rules exemption to Western Power for the Nilgen connection at this time.
31. The Authority also notes that the technical rules exemption only allows Western Power to connect Nilgen up to 107.25 MW, should it be successful in securing an Access Offer under the AQP.

Conclusions

32. The Authority's technical adviser notes that:

We do not consider it in the interests of economic efficiency that clause 2.5.2.2 of Western Power's Technical Rules be used to prevent the constrained connection of new generation to Western Power's transmission network. We therefore recommend that Western Power's application to exempt the connection of the Nilgen wind farm from this clause of the Technical Rules be approved by the Authority.⁷

33. Taking account of the matters discussed above, the Authority considers the disadvantages of requiring compliance with the Technical Rules for connection of Nilgen are likely to exceed the advantages.

⁶ Submission for exemption from compliance with clause 2.5.2.2 (N-1 criterion) of the Technical Rules for the Nilgen wind farm (107.25 MW) connection, Western Power, November 2012, p.8.

⁷ Review of Western Power's Application for a Technical Rules Exemption for Nilgen Wind Farm, Geoff Brown & Associates, January 2013, p. 6.