

Application for exemption from certain requirements of the Technical Rules submitted by Western Power

- Connection of the Nilgen Wind Farm

Issues Paper

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Economic Regulation Authority

WESTERN AUSTRALIA

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Contents

1	Introduction	1
2	Exemptions from Technical Rules	1
3	Western Power’s Application	2
4	Matters to be considered	3
4.1	Nilgen Connection	3

1 Introduction

Western Power has submitted an application to the 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 Exemptions from Technical Rules

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 2011.

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.

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.

Under section 12.43, 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.

Under section 12.46, the Authority may consult the public in accordance with Appendix 7. Section 12.44 requires the Authority to notify the service provider of its determination within 45 business days of receiving the application, if it has consulted with the public, and 25 business days if it has not.

Under section 12.42, the Authority may refer a service provider's request to the technical rules committee and request its advice on the application. If it seeks advice from the technical rules committee then, subject to complying with the specified time limits, the Authority must have regard to that advice in making its determination.

Section 12.47 requires the Authority to publish a notice giving details of any exemption.

3 Western Power's Application

Western Power submitted an application for an exemption to the Authority on 6 November 2012.

The application is for an exemption from compliance with clause 2.5.2.2 (requirement to base reliability on an N-1¹ criterion) 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.

For a transmission system N-1 planning criterion means that for the loss of any single transmission element, supply to this network is maintained and load shedding is avoided. Under an N-0 criterion the loss of a transmission element will result in load shedding to maintain the network.

The exemption applied for by Western Power 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.

Nilgen is proposed to be located approximately 9 km north-east of Lancelin. The wind farm is proposed to be connected in the North Country by cutting in and out of the existing Pinjar – Cataby 132 kV transmission line.

Western Power has undertaken studies that identified that under the maximum generation scenario, where all the existing generators in the North Country and 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.

The proposed connection arrangement between Western Power and Nilgen incorporates the following:

1. 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;
2. Up rating of the Joondalup to Wanneroo 132 kV line;
3. Installation of dynamic line rating equipment on the Mullaloo to Joondalup 132 kV line to reduce the probability of runback events; and
4. Installation of a runback scheme for Nilgen to prevent pre-contingent overloading as well as contingent (N-1) overloading in the network.

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. Western Power has noted that Nilgen has accepted the proposed connection arrangement and understands the potential financial impact from the constrained connection. Western Power anticipates that the runback

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

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.

In its application, Western Power provided a copy of a letter from Nilgen's owner, Pacific Hydro, indicating support for Western Power's application and confirming its support for the implementation of a constrained connection and operation of a runback scheme.

Western Power has stated that the proposed connection arrangement has no adverse impact on the existing level of safety and reliability to other network users and does not stifle any future strategic network developments.

4 Matters to be considered

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.

4.1 Nilgen Connection

Western Power identified a number of network reinforcement options to minimise the impact of connecting Nilgen. Further analysis by Western Power showed that the options (with costs in excess of \$50 million) would still not comply with Clause 2.5.2.2 of the Technical Rules.

Western Power did identify two relatively low cost reinforcement options that will serve to reduce the probability of Nilgen being required to runback, these have been included as part of the proposed works to connect Nilgen, these are set out in points 2 and 3 in Western Power's Application summary on page 2.

However, Western Power considers that there were no feasible options identified that can entirely eliminate the need for runback while at the same time being financially acceptable to Nilgen.

Submissions are invited from interested parties on Western Power's application, in particular regarding:

- whether the proposed exemption will materially impact on other users; and
- whether there are any reasonable alternative options which would be compliant with the Technical Rules.