

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

- Protection schemes Mumbida-Mungarra and Mumbida-Three Springs 132 kV lines
- Supply to Karara Mining Limited

Issues Paper

May 2012

Economic Regulation Authority

WESTERN AUSTRALIA

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1 Introduction

Western Power has submitted applications to the Authority for exemption from compliance with certain requirements of its Technical Rules in relation to the supply of electricity to Karara Mining Ltd (**KML**) and the proposed Mumbida Windfarm. The applications are 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 Applications

Western Power submitted two applications for exemptions to the Authority on 7 May 2012:

- exemption from clause 2.9.4 of the Technical Rules, specifically for protection clearance time for the future Mumbida – Three Springs and Mumbida – Mungarra 132 kV lines under abnormal operating conditions; and
- exemptions in relation to the connection for KML:
 - in relation to the temporary supply arrangements prior to the Mid West Energy Project (**MWEP**) being completed: exemption from the requirement of clause 2.5.2.2 of the Technical Rules to design the 132 kV sub-network at Eneabba Substation to supply KML to N-1 criterion and instead base the design on a lower criterion of N-0.¹
 - in relation to the supply once the MWEP is complete: exemption from the requirement of clause 2.5.2.3 of the Technical Rules to design the 330 kV transmission network between Neerabup Terminal and Three Springs Terminal and the 330 kV Three Springs Terminal to supply KML to N-1-1 criterion and instead base the design on a lower criterion of N-0.

Western Power considers that, in the case of the Mumbida Windfarm connection, the additional cost to implement a solution which is compliant under all operating conditions cannot be justified at this time because the cheaper non-compliant solution provides an acceptable technical outcome and better meets the Technical Rules objectives of section 12.1 of the Code.²

In the case of the exemptions relating to KML, Western Power has advised that the exemption will apply to the KML load facility only, as load shedding and load tripping schemes will be installed as part of this connection to ensure other network customers do not experience a reduced quality and reliability of supply. Western Power considers the exemption is justified on the basis that:

- It is consistent with the need for an exemption identified in Western Power's MWEP regulatory test submission approved by the Authority and also with the subsequent pre-approval new facility investment test (**NFIT**) determination by the Authority.
- The intent of the N-1-1 planning criterion covering all 330 kV equipment embedded in the Technical Rules (to avoid the loss in supply to a large number of customers) is not reasonably applicable for supply to a distant single customer such as KML.
- The additional cost of providing a fully compliant N-1-1 connection at Three Springs Terminal, estimated at \$461 million in real 30 June 2010 dollars (in addition to the capital cost of the MWEP solution) is clearly uneconomic to KML and other network users.

¹ Terminology such as "N-0" and "N-1" is commonly used for describing the level of security of the transmission system. Where loss of a single transmission element (a line, transformer or other essential piece of equipment) could cause a supply interruption to some customers, the level of security of supply is said to be "N" or "N-0". "N-1" is a higher level of security and describes a network built to a standard such that a network element can be out of service without overloading the remaining elements or resorting to load shedding.

² The objectives for technical rules are that they are reasonable, do not impose inappropriate barriers to entry to a market, are consistent with good electricity industry practice and are consistent with relevant written laws and statutory instruments.

- The additional cost of providing an N-1 connection at Three Springs Terminal as an alternative solution is estimated at \$79 million in real 30 June 2010 dollars. The Authority's final MWEF NFIT determination shows these higher costs would not meet NFIT and would require a major capital contribution from KML without additional major mining or other block loads connecting beyond KML's 120 MW.
- The provision of a higher level of reliability (i.e. N-1 and N-1-1) at the 330 kV bus at Three Springs Terminal would only result in a marginal improvement in supply reliability for KML given that KML will be exposed to an N-0 level of supply reliability over its 110 km 330 kV transmission connection asset to its mine site.
- In extensive consultation with KML over an extended period, KML has confirmed that an N-0 level of supply reliability is acceptable to the KML operation to avoid the additional costs of providing a higher level of supply reliability for its initial operations.

In its application, Western Power provided a copy of a letter from KML indicating support for Western Power's application and confirming understanding of the implications for KML. Western Power has also advised that a condition of the commercial agreements under which network services will be provided to KML is that the Authority grants any necessary exemptions or derogations to the Technical Rules in respect of the services provided.

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 Mumbida Windfarm connection

As set out in its application, Western Power considers that, in the case of the Mumbida Windfarm connection, the additional cost to implement a solution which is compliant under all operating conditions cannot be justified at this time because the cheaper non-compliant solution provides an acceptable technical outcome and better meets the Technical Rules objectives of section 12.1 of the Code.³

Submissions are invited from interested parties on whether the additional costs of implementing a solution which is compliant under all operating conditions is likely to outweigh the advantages.

4.2 KML interim supply

Western Power states that it has not identified any feasible alternative option under which a fully compliant N-1 supply planning criterion can be met in providing KML with a

³ The objectives for technical rules are that they are reasonable, do not impose inappropriate barriers to entry to a market, are consistent with good electricity industry practice and are consistent with relevant written laws and statutory instruments.

reference service supply from the existing 132 kV sub-network at Eneabba substation before completion of the MWEP (Southern Section). Western Power notes that the exemption is sought solely to enable KML's initial connection to transition to the final supply arrangement in a manner that does not materially impact on other network users. Western Power's application includes a letter from KML confirming its agreement to the application.

Submissions are invited from interested parties on 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.

4.3 KML final supply

Western Power considers that the intent of the N-1-1 planning criterion covering all 330 kV equipment embedded in the Technical Rules (to avoid the loss in supply to a large number of customers) is not reasonably applicable for supply to a distant single customer such as KML. Western Power has estimated the costs of meeting an N-1-1 or N-1 compliant scheme to be:

- The additional cost of providing a fully compliant N-1-1 connection at Three Springs Terminal, estimated at \$461 million in real 30 June 2010 dollars (in addition to the capital cost of the MWEP solution) is clearly uneconomic to KML and other network users.
- The additional cost of providing an N-1 connection at Three Springs Terminal as an alternative solution is estimated at \$79 million in real 30 June 2010 dollars. The Authority's final MWEP NFIT determination shows these higher costs would not meet NFIT and would require a major capital contribution from KML without additional major mining or other block loads connecting beyond KML's 120 MW.

Western Power also notes that the provision of a higher level of reliability (i.e. N-1 and N-1-1) at the 330 kV bus at Three Springs Terminal would only result in a marginal improvement in supply reliability for KML given that KML will be exposed to an N-0 level of supply reliability over its 110 km 330 kV transmission connection asset to its mine site.

Western Power's application includes a letter from KML confirming that it is satisfied with this level of transmission network reliability and agrees with the approach taken by Western Power to minimise the upfront capital costs of the initial configuration whilst still providing economic options for future flexibility and expansion of the 330 kV network.

Submissions are invited from interested parties on 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.