

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

Wagin Substation Weak In-Feed

July 2015

Economic Regulation Authority

WESTERN AUSTRALIA

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Decision

1. Western Power 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 Morton Seed and Grain (885 kVA non-exporting generator) at the Wagin Substation.
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 and they 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.
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 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.
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 18 June 2015, with a closing date of 2 July 2015. As part of this consultation, the Authority prepared an issues paper to assist interested parties. Five submissions were received and have been published on the Authority's website.
6. After consideration of Western Power's application for exemption from the Technical Rules, independent advice from both EnergySafety WA and the Authority's technical adviser and the public submissions received, the Authority has determined that the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages. The Authority, therefore, approves Western Power's application for an exemption.
7. The following exemption is granted:
 - Western Power is exempted from complying with the requirements of Clause 2.9.4 of the Technical Rules with respect to the connection of the Morton Seed and Grain (885 kVA non-exporting generator). This exemption enables Western Power to:
 1. provide a constrained connection without upgrading Wagin substation; and
 2. comply with a revised maximum clearance time that does not exceed 1 second.
8. The reasons for the Authority's decision are set out below.

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 12 May 2015.
12. The application was for a temporary exemption from compliance with clause 2.9.4 of the Technical Rules (i.e. maximum total fault clearance times) to allow Western Power to connect an 885 kVA non-exporting Private Parallel Generator (**PPG**) for its customer, Morton Seed & Grain (**MSG**) to the Wagin Substation.
13. MSG's connection site is located approximately 7 km from the Western Power Wagin Substation. The PPG consists of a single generator of 885 kVA which will not be exporting power into the Western Power Network.

Western Power's Assessment

14. The proposal is to connect the PPG to the Wagin substation via the existing 22 kV WAG510 feeder. Due to the age of the substation, both transformers at the Wagin substation have only HV fuses installed instead of circuit breakers, which are the current standard.
15. The Wagin substation is deemed to comply with the Technical Rules under clause 1.9.4 as it existed prior to 2007. However, for Western Power to connect MSG's PPG and remain compliant with the Technical Rules, a substantial upgrade would be required at the Wagin substation including new 66 kV and 22 kV circuit breakers, current transformers and associated protection equipment. Western Power has estimated the upgrade cost at \$2 million, plus costs for additional communication and SCADA upgrades.

16. Western Power has considered the options based on MSG's connection requirements and the current network considerations and proposes to connect the PPG without requiring the whole substation to comply with clause 2.9.4 in the Technical Rules.
17. Western Power's intention is that the Wagin substation will return to compliance as part of the network development planning process because the substation assets are aging and approaching the end of their life.
18. In order to reduce the risk exposure, Western Power is proposing that a SCADA style inter-trip arrangement¹ is put in place as an integral part of the connection. This is to ensure that the disconnection of the PPG only occurs at times when the 66 kV transmission lines supplying the Wagin substation are out of service for planned or unplanned outages.
19. Western Power considers that the proposed connection arrangement permits MSG to obtain a covered service to the extent reasonably practicable, in accordance with good electricity practice, while efficiently minimising any cost associated with network augmentation.
20. MSG has expressed its acceptance of the proposed connection arrangement and the associated operational constraints. The proposed connection arrangement has no additional impact on the existing level of safety and reliability to other network users.

Public Submissions

21. 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 18 June 2015, with a closing date for submissions of 2 July 2015. Submissions were received from Community Electricity, EFK Consulting Engineers, PerthEnergy, the Shire of Wagin and the Honourable Jim Chown MLC – Member for the Agricultural Region.
22. All five submissions received supported the Technical Rules exemption application and have been published on the Authority's website.
23. It is noted in the submissions from Community Electricity, EFK Consulting Engineers, the Shire of Wagin and from Jim Chown MLC, that granting the exemption will not of itself compromise safety or reliability of supply for other users.

Authority's Considerations

24. In considering whether to approve Western Power's application 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

¹ The controlled tripping, or disconnection, of equipment which ensures the isolation of the equipment concerned during unacceptable operational circumstances (such as faulted, or planned outages, for equipment essential for the safe, reliable continuous connection and operation of the equipment)

circumstances, the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages.

25. The Authority appointed a technical advisor, Geoff Brown and Associates (**GBA**), to provide advice in relation to Western Power's application.
26. GBA notes that while an upgrade of the Wagin Substation would potentially improve the reliability of supply to consumers supplied from this substation (as it would provide N-1 security²), there is no evidence in Western Power's application that consumers require (or are willing to pay for) an immediate improvement in the existing level of service. Indeed, the number of submissions received in support of the application would suggest that consumers are generally satisfied with the level of service currently provided.
27. GBA considers that the connection of the generator to the existing network, without upgrading the Wagin Substation, would have no impact on the level of service currently provided to consumers supplied from the substation.
28. The only impact that GBA identified was the potential increase in the fault clearing time, which has a safety implication in that it increases the time that a person or animal in contact with the network during a fault could be exposed to a potentially hazardous current. However, GBA notes that Western Power has proposed measures to mitigate this safety risk to the extent possible without upgrading the substation.
29. The Authority also consulted EnergySafety WA regarding Western Power's exemption application. EnergySafety WA noted that Morton Seed and Grain's generator will be equipped with a reverse-power protection relay which will ensure that the machine cannot export power into the Western Power Network and all of the generator's output will be consumed within the company's facility.
30. EnergySafety WA have advised that upgrading the Wagin Substation is not necessary in this instance given Western Power's undertakings that includes the provision of protection inter-tripping.
31. Taking account of the advice from GBA confirming that the proposed exemption will not impact on the level of service currently provided to other consumers, and the advice from EnergySafety that the exemption will not result in a safety issue, the Authority considers the disadvantages of requiring compliance with the Technical Rules is likely to exceed the advantages.

² Terminology such as "N-0" and "N-1" is commonly used for describing the level of security of the transmission system. N-1 requires supply to be maintained and load shedding avoided if one transmission element, such as a transmission line or transformer, is out of service, irrespective of generation schedules.