

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

Additional supply to the Geraldton Port Authority

December 2012

Economic Regulation Authority

WESTERN AUSTRALIA

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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 additional supply of electricity to the Geraldton Port Authority (**GPA**). 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 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 6 November 2012, with a closing date for submissions of 22 November 2012. As part of this consultation, the Authority prepared an issues paper to assist interested parties. Two submissions were received and have been published on the Authority's website.¹
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 approved exemption granted until the Mid West Energy Project (**MWEP**) Southern Section is in service is:
 - exemption from clause 2.5.2.2, N-1 Criterion², of the Technical Rules, insofar as it applies to the Geraldton Port Authority's additional load of 11.65 MVA such that this additional load will be provided as an N-0 supply from the North Country transmission sub-network.

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

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

8. The exemption is granted on the provision that:
- GPA's additional load of 11.65 MVA is supplied on a curtailable basis; and
 - The N-1 supply reliability provided to existing network users in the North Country, including those supplied from the Rangeway Substation, is not adversely affected as a result of GPA's additional load of 11.65 MVA.

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 19 October 2012.
12. Western Power's application is for a temporary exemption from compliance with clause 2.5.2.2 (requirement to base reliability on an N-1 criterion) to allow Western Power to provide a requested load increase for GPA of 11.65 MVA with a supply from the North Country transmission system, that meets a lower N-0 reliability criterion.

Western Power's Assessment

13. Western Power considers the exemption is necessary for the following reasons:
 - Western Power cannot augment the network to deliver an N-1 supply within the timeframe requested for connection by GPA;
 - the cost of an alternative option to provide GPA an N-1 supply by procuring generation via network control services (**NCS**)³ is likely to be significant. There are also no suitable generators currently installed that could provide an NCS service to remove the Rangeway transformer capacity constraint;
 - an N-0 reliability of supply is acceptable for GPA's operations. This is its preferred connection option and facilitates connection to supply the additional load in the timeframe requested;
 - the proposal will not adversely impact the supply reliability and quality for other network users; and

³ Network control services are demand-side management or generation solutions that can be a substitute for network augmentation.

- the exemption will be temporary until the MWEPS Southern Section transmission augmentation is in service and the need for an exemption beyond this date would be the subject of a separate future submission to the Authority.
14. In its application, Western Power provided a copy of a letter from GPA indicating support for Western Power's application and confirming its understanding that due to network constraints Western Power is unable to provide this as a reference service.

Public Submissions

15. 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 6 November 2012, with a closing date for submissions of 22 November 2012. Submissions were received from Community Electricity and Extension Hill Pty Ltd and have been published on the Authority's website. Community Electricity and Extension Hill Pty Ltd both supported Western Power's exemption application.

Authority's Considerations

16. 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.
17. The Authority's technical adviser has carried out a high level review of Western Power's application and noted that:

*The Geraldton Port Authority (GPA) has submitted an application to Western Power to increase its contracted maximum demand by 11.65 MVA (from 7.35 MVA to 19 MVA) in December 2012. Western Power's transmission network supplying the Geraldton urban area has sufficient capacity to accommodate this additional demand provided all elements of the relevant part of the network are in service, but may not be able to supply the requested additional demand when a transmission element is not in service and electricity consumption by other network users is high.*⁴

18. Western Power considered three alternative options that would allow the additional GPA load to be connected without affecting the reliability of supply to other users.

Network Augmentation

19. The Authority's technical adviser notes that the:

*... traditional solution involves the augmentation of the network to provide sufficient capacity to relieve the constraint. Western Power has identified three immediate constraints that would need to be separately addressed if this solution was adopted.*⁵

20. The three constraints identified include Voltage Stability, Thermal Line Overloads and the Rangeway Transformer Capacity. The Authority's technical adviser notes that:

⁴ Review of Western Power's Application for a Technical Rules Exemption for Geraldton Port Authority Network Connection, Geoff Brown & Associates, December 2012, p.1.

⁵ Review of Western Power's Application for a Technical Rules Exemption for Geraldton Port Authority Network Connection, Geoff Brown & Associates, December 2012, p. 2.

- there is already voltage stability issues at Geraldton which is currently being managed, but a solution could not be implemented until 2014.
 - there is a risk of thermal line overloads but that this should be addressed by MWEPS Southern Section transmission augmentation which is expected to be completed by May 2014.
 - there is a risk of a marginal overload of a power transformer at the Rangeway substation and that a solution could not be implemented until 2015. Although, there were mitigation options in the short-term.
21. As a network augmentation solution cannot be implemented until 2014 at the earliest and GPA requires the connection by December 2012, this solution was not pursued further by Western Power.

Generation Solution

22. A possible compliant supply option, being a Network Control Service solution, was identified that would have provided the GPA with an N-1 supply using the Mungarra Gas Turbines (**Mungarra**).
23. The Authority's technical adviser notes that:
- Western Power offered GPA the generation solution on the basis that it would be required to pay the cost of additional out of merit dispatch of the Mungarra generators and also any costs incurred in arranging additional network support in the Geraldton area. GPA has rejected this as uneconomic to its operation. Currently the cost of using Mungarra generation for network support is shared by all network users. However, requiring all users to pay for the generation needed to accommodate GPA's additional load would subsidise GPA's operations.⁶*
24. The compliant supply generation solution has been deemed uneconomic by GPA and accordingly has been rejected as a possible solution to the additional supply required.

Curtailed Supply

25. The Authority's technical adviser notes that:
- A third alternative is to provide GPA with a lower quality supply than provided for under the technical rules. Under this approach, supply to GPA would be provided utilising the power transfer capacity that normally kept in reserve for use following the loss of a network element. In the event a contingency arises where this reserve power transfer capacity is needed to supply other network users, the GPA load would automatically be disconnected to make the power transfer capacity available. Under this arrangement, GPA would be connected without materially impacting the quality of supply to other consumers. From Western Power's perspective, its existing assets would be more highly utilised and the need for a network augmentation would be deferred. However the quality of supply provided to GPA would be lower than that offered to other consumers and lower than it is entitled to under Western Power's technical rules.*
- The provision of a curtailable supply of this nature is a form of demand management. However it differs from the more traditional approach to demand side management in*

⁶ Review of Western Power's Application for a Technical Rules Exemption for Geraldton Port Authority Network Connection, Geoff Brown & Associates, December 2012, p. 4.

*that there is no advanced warning and all incoming curtailable load is automatically disconnected.*⁷

26. The curtailable supply solution is acceptable to both GPA and Western Power. Western Power's application for exemption to 2.5.2.2 of the Technical Rules for the implementation of the curtailable supply option is temporary until the MWEP Southern Section is in service. Should a need arise for an exemption beyond the MWEP Southern Section coming into service, another exemption application would be required.

Recommendations

27. The Authority's technical adviser notes that:

We see the proposed approach as a pragmatic solution that allows GPA to connect its additional load to Western Power's North Country transmission network without adversely impacting the reliability of supply to existing consumers. It is a technically elegant solution in that it defers the need for immediate network augmentation and reduces the risk of an augmentation proceeding that is not consistent with the optimal development of a network arrangement that best serves the longer term demand for transmission network services in the area. We note the high level of uncertainty that currently exists around these future requirements. The solution is also economically efficient in that it does not require GPA to pay for a level of service that it does not need.

*We therefore recommend that Western Power's application for a technical rules exemption be approved.*⁸

28. Taking account of the matters discussed above, the Authority considers the disadvantages of requiring compliance with the Technical Rules for additional supply of 11.65 MVA to the GPA are likely to exceed the advantages.

⁷ Review of Western Power's Application for a Technical Rules Exemption for Geraldton Port Authority Network Connection, Geoff Brown & Associates, December 2012, p. 3.

⁸ Review of Western Power's Application for a Technical Rules Exemption for Geraldton Port Authority Network Connection, Geoff Brown & Associates, December 2012, p. 5.