

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

Byford PV solar farm (3 x 9.9 MW) connections

Issues Paper

November 2014

Economic Regulation Authority

WESTERN AUSTRALIA

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Invitation to make submissions

Interested parties are invited to make submissions on the Authority's issues paper by **4:00 pm (WST) Wednesday, 3 December 2014** via:

Email address: publicsubmissions@erawa.com.au

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Office address: Level 4, Albert Facey House, 469 Wellington Street, Perth WA 6000

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CONFIDENTIALITY

In general, all submissions from interested parties will be treated as being in the public domain and placed on the Authority's website. Where an interested party wishes to make a submission in confidence, it should clearly indicate the parts of the submission for which confidentiality is claimed, and specify in reasonable detail the basis for the claim. Any claim of confidentiality will be considered in accordance with the provisions of *Electricity Networks Access Code 2004*, sections 14.12 to 14.15.

The publication of a submission on the Authority's website shall not be taken as indicating that the Authority has knowledge either actual or constructive of the contents of a particular submission and, in particular, whether the submission in whole or part contains information of a confidential nature and no duty of confidence will arise for the Authority.

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Introduction

1. 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 WestGen Pty Ltd's (**WestGen**) three 9.9 MW Byford photovoltaic (**PV**) solar farms (**Byford PV solar farms**). The application is made under section 12.40 of the *Electricity Networks Access Code 2004* (**Access Code**).

Exemptions from Technical Rules

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 12.43, 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.
6. 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.
7. 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.
8. Section 12.47 requires the Authority to publish a notice giving details of any exemption.

Western Power's Application

9. Western Power submitted an application for an exemption to the Authority on 21 October 2014.
10. The application is for a temporary exemption from compliance with clause 2.5.2.2 of the Technical Rules (i.e. a requirement to base reliability on an N-1¹ criterion) to allow Western Power to provide a constrained connection for the Byford PV solar farms (3 x 9.9 MW Declared Sent Out Capacity (**DSOC**) for a total of 29.7 MW DSOC).
11. WestGen is a member of the Competing Applications Group (**CAG**) No. 81: South Country Generation (**CAG 81**). Western Power is currently progressing a Network Constraint Tool (**NCT**) solution for CAG 81. WestGen is seeking to connect to the Western Power network prior to the NCT solution becoming available to connect all members of CAG 81.
12. Western Power in consultation with WestGen has proposed a non-reference service under which WestGen has agreed that its ability to export electricity will be constrained via a post-contingent runback scheme under certain network conditions. This will enable the Byford PV solar farms to connect and operate without the need for significant network augmentation, and prevent contingent (N-1) overloading in the network.
13. Western Power has stated that there will be no impact on other network users, including the other members of CAG 81.
14. Western Power does not expect similar requests from other CAG 81 users as current connection timelines for other members of the group extend beyond the expected development of a NCT solution. If a member of CAG 81 seeks a similar interim arrangement, Western Power would assess the suitability on a case by case basis.
15. Western Power has conducted studies and identified the following network constraints which need to be addressed to enable the connection of the Byford PV solar farms:
 - Single phase fault levels at Kwinana and Southern Terminal 132 kV bus sections exceed 95% equipment rating limit stipulated in the Technical Rules:
 - N-1 contingencies result in thermal overloading of several 132 kV circuits in the Mandurah Load Area.
16. Mindful of these constraints, Western Power studies have recommended progressing with the connection of each of the solar farms to 22 kV shared feeders with a post-contingent runback scheme monitoring the following 132 kV transmission lines:
 - Pinjarra – Alcoa Pinjarra (PNJ – APJ 81) Transmission Line;
 - Pinjarra – Cannington/Meadow Springs (PNJ – CT/MSS 81) Transmission Line;
 - Pinjarra – Mandurah (PNJ – MH 81) Transmission Line.

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

17. Under the proposed runback scheme, the generation output will be runback (reduced) as required to prevent pre-contingent overloading as well as a contingent (N-1) overloading in the network.
18. Western Power has stated that it considers the advantages of operating with the exemption sought outweigh the disadvantages of requiring full compliance in this case.
19. Further, in its application, Western Power provided a copy of a letter from WestGen indicating support for Western Power's application as it believes it is the only alternative that provides an appropriate balance between connection reliability and cost to the solar farm projects.
20. As this interim solution has been requested by WestGen, the solution will be funded by a customer contribution.

Matters to be considered

21. 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.

Byford Connections

22. Western Power's studies have identified numerous network constraints which need to be addressed to enable the connection of the Byford PV solar farms.
23. Taking into consideration these constraints, Western Power is recommending progressing with the connection of each of the solar farms to 22 kV shared feeders with a post-contingent runback scheme monitoring a number of 132 kV transmission lines.
24. Under the proposed runback scheme, the generation output will be runback (reduced) as required to prevent a pre-contingent overloading as well as a contingent (N-1) overloading in the network.
25. The proposed runback does not require co-ordination with any other runback schemes at present.
26. The exemption application is temporary and will apply until 1 December 2018 or until the proposed Competing Applications Group 81: South Country Generation becomes operational.

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

- Whether the proposed exemption will materially impact on other users including members of the *CAG 81: South Country Generation*; and
- Whether there are any reasonable alternative options which would be compliant with the Technical Rules.