

Our reference: 47775088  
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Elizabeth Walters  
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Economic Regulation Authority  
Level 4, 469 Wellington Street  
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Dear Elizabeth

**Application to revoke Technical Rules temporary exemption granted to Western Power for Meadow Springs Zone Substation – Consultation Paper**

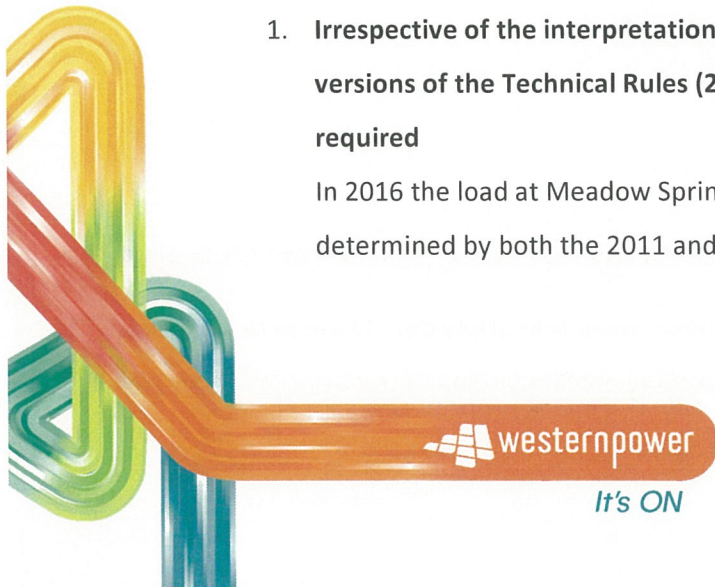
On 14 February 2019 the Economic Regulation Authority (ERA) published a consultation paper seeking comments from interested parties on Mr Davidson's application to revoke Technical Rules temporary exemption granted to Western Power for Meadow Springs Zone Substation. The paper specifically requested a response to two main issues:

*Issue 1: The ERA is seeking comment from interested parties on whether the temporary exemption from compliance with clause 2.5.4(b) of the Technical Rules with respect to capacity requirements at the Meadow Springs zone substation granted to Western Power in July 2015 should be revoked.*

Western Power strongly believes that the exemption should not be revoked due to the following reasons:

- 1. Irrespective of the interpretation of the Normal Cyclic Rating (NCR) criterion in the versions of the Technical Rules (2011 version versus 2016 version), the exemption was required**

In 2016 the load at Meadow Springs exceeded substation capacity based on the limit determined by both the 2011 and 2016 versions of the Technical Rules. Again in 2018, the



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load nearly exceeded the capacity of the substation as calculated by the 2011 version requirements and firmly exceeded capacity as per the 2016 version requirements. Therefore, without the exemption Western Power would have been found non-compliant to the Technical Rules and an investment to address the non-compliance would have had to be brought forward. This is discussed in detail in the information Western Power provided to the ERA which is published as Appendix 3<sup>1</sup> on the ERA's website. Furthermore, according to the 2018 load forecast, it was expected that in 2019 the substation peak load may exceed the substation capacity. Therefore, the exemption is required until the Meadow Springs substation third transformer installation works are completed. The new transformer will relieve the substation capacity constraint and thereon the exemption will no longer be required.

**2. The application of the 'Risk based planning' method instead of a 'deterministic planning' approach by Western Power ensured that over investment was avoided**

The reason for the exemption request was to delay the investment required to relieve the substation capacity constraint by installing a third transformer at Meadow Springs. According to the load forecast in 2015, the Meadow Springs substation load would have exceeded capacity in 2016, as per both the 2011 and 2016 methods of NCR substation capacity determination. In response, Western Power believed that it was prudent to employ a risk-based planning approach using the Value of Unserved Energy (VoUSE) rather than apply a deterministic approach, as required in the Technical Rules. Western Power conducted an analysis of the Mandurah load area which includes the Meadow Springs substation. The analysis consisted of assessing the substation load patterns, load growth in the area and the substation asset capabilities. Western Power concluded that the risk of non-compliance was minimal and that it can be managed through network switching and the employment of Rapid Response Spare Transformers (RRST). Western Power then applied to the ERA for an exemption from the Technical Rules NCR criterion and proposed to defer the investment in Meadow Springs substation by 2 years to 2016/17 and a second investment at Mandurah substation to 2019/20<sup>2</sup>.

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<sup>1</sup> Appendix 3

<https://www.erawa.com.au/cproot/20082/2/Appendix%203%20-%20Western%20Power%20-%20Update%20to%20Technical%20Rules%20exemption%20request.pdf>

<sup>2</sup> Page 7 - Submission to the Economic Regulatory Authority for Exemption from the Technical Rules Clause 2.5.4 (b) for Meadow Springs Zone-Substation

<https://www.erawa.com.au/cproot/13583/2/Western%20Power%20application%20for%20tech%20rules%20exemption%20-%20Meadow%20Springs%20Zone%20Substation.pdf>



Due to a reduction in load growth, Western Power has been able to further delay the investment at Meadow Springs to 2018/19 and the proposed investment at Mandurah beyond 2021, therefore efficiently avoiding premature investment.

*Issue 2: The ERA is seeking stakeholder views on the matters raised by Mr Davidson about how the NCR capacity should be determined and the effect on investment decisions*

Western Power strongly supports the amended NCR criterion as reflected in the 2016 version of the Technical Rules due to the following reasons:

**1. The amended Technical Rules support greater reliability for customers and the efficient restoration of power during the unplanned loss of one substation transformer**

The 2011 version of the Technical Rules permits a load loss of a portion of the power transfer capacity which is the lesser of 75% of the smallest transformer or 90% of the RRST, for 12 hours until a RRST is installed to supply the load (which is approximately a maximum load loss of 24.8 MVA for a 33MVA transformer). Under this requirement all NCR substations can be loaded up to approximately 90% of its transformer name plate rating. Therefore, a NCR substation can only offer very little in spare capacity at 100% loading and hence will not be able to accept load transfers thus restricting flexibility to support reliability. The issue with this criterion is that it:

- Permits large load loss for 12 hours which causes inconvenience to all customers (households, commercial and industrial) in the Metropolitan area.
- Does not provide sufficient flexibility for anomalies during contingencies, hence it is difficult to manage operationally.

The amended NCR criterion as published in the 2016 version of the Technical Rules considers the substation capacity to be 75% of the sum of all power transformer capacities. Under this criterion NCR substations:

- Have spare capacity for load transfers during the unplanned loss of a transformer in a neighbouring substation
- The load loss is minimal resulting in better reliability for customers
- Network restoration is done more easily and quickly.

**2. Concerns on over investment is addressed through the risk-based planning approach.**

The deterministic requirements of the Technical Rules provide an indicator for compliance and a trigger for investment. From these signals, Western Power engages in detailed studies of the network to which risk mitigation strategies are applied. This risk-based planning approach for investment justification ensures that Western Power does not make

unnecessary investments. It recognises that the 'one rule for all' is not a prudent approach as the load growth conditions, load consumption behaviour, substation equipment capabilities and limitations differ from substation to substation. Therefore, site specific conditions play an important role before an investment decision is made, as demonstrated in the Meadow Springs exemption case.

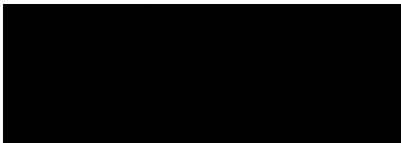
Western Power further believes that the use of VoUSE as part of the final investment justifications for an investment trigger is prudent and notes that it is practised in the East Coast of Australia under the National Electricity Rules.

In summary, Western Power strongly believes that:

1. Exemption for the Meadow Springs substation should remain until the completion of the third transformer works.
2. The NCR substation capacity as determined by the 2016 version of the Technical Rules results in a better reliability outcome in comparison to the previous method of determination under the 2011 version of the Technical Rules. All concerns relating to over investment will be addressed through risk-based planning approach and the New Facilities Investment Test, as required by the Access Code.

If you have any queries in regards to this matter, please do not hesitate to contact Sabina Roshan on 9326 7141.

Yours sincerely



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Western Power