Application to revoke Technical Rule temporary exemption granted to Western Power for Meadow Springs Zone Substation

Final Decision

26 July 2019

Economic Regulation Authority
WESTERN AUSTRALIA

D204427

Economic Regulation Authority

4th Floor Albert Facey House
469 Wellington Street, Perth

Mail to:
Perth BC, PO Box 8469
PERTH WA 6849

T: 08 6557 7900

F: 08 6557 7999

E: info@erawa.com.au

W: www.erawa.com.au

National Relay Service TTY: 13 36 77
(to assist people with hearing and voice impairment)

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Final Decision

In December 2016, Mr Stephen Davidson applied to the Economic Regulation Authority for Western Power's temporary exemption from compliance with the requirements of its Technical Rules[1] for capacity at the Meadow Springs zone substation[2] to be revoked.

The exemption Mr Davidson is seeking to revoke was requested by Western Power in May 2015 under section 12.40 of the Access Code for a temporary exemption from compliance with clause 2.5.4(b) of the Technical Rules' capacity requirements at the Meadow Springs zone substation.

Clause 2.5.4(b) of the Technical Rules sets out the Normal Cyclic Rating (NCR) Criterion, which determines the maximum allowable power that can be transferred through the Meadow Springs zone substation under normal operating conditions.[3] The exemption allows a higher level of power to be transferred than would be the case if there were no exemption.

Western Power requested the exemption to enable it to defer capital expenditure in the Mandurah load area.

The ERA determined that the disadvantages of requiring compliance with the Technical Rules were likely to exceed the advantages and therefore, as required under section 12.41 of the Access Code, approved Western Power's exemption application in July 2015.

> Western Power is temporarily exempted from complying with the requirements of clause 2.5.4(b) (NCR Criterion) of the Transmission Planning Criteria in the Technical Rules at Meadow Springs zone substation.
>
> The stated temporary exemption applies until the completion of Stage 2 of the Mandurah load area investment strategy, or unless otherwise revoked under the provisions of the *Electricity Networks Access Code 2004*.

Mr Davidson's application was made under section 12.45 of the Access Code, which states that a person may apply to the ERA for an exemption granted under section 12.41 to be revoked.

The ERA prepared a consultation paper on Mr Davidson's application and issued an invitation for submissions on 14 February 2019 with a closing date of 15 March 2019. Three submissions were received and have been published on the ERA's website.[4]

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1 The Technical Rules set out the standards, procedures and planning criteria governing the construction and operation of the Western Power network and are required under the *Electricity Networks Access Code 2004*.

2 The Meadow Springs zone substation transfers power from the transmission network to the distribution network in the Mandurah area.

3 The NCR criterion permits the loss of a portion of power transfer capacity at a submission following the unplanned loss of a supply transformer. As set out in the note to clause 2.5.4 of the Technical Rules, zone substations require special consideration as they form the boundary between the transmission system and the distribution system. The NCR criterion permits higher supply transformer utilisation than that permitted by the N-1 criterion but lower than that permitted by the N-0 criterion. The NCR criterion is based on sharing a common spare supply transformer among a population of supply transformers across a number of zone substations within a geographically confined area. A trade-off is the risk of limited load shedding for as long as it takes to deploy and install a spare supply transformer.

4 https://www.erawa.com.au/electricity/electricity-access/western-power-network/technical-rules/era-determinations-on-exemptions-from-the-technical-rules/meadow-springs-zone-substation-technical-rules-exemption/meadow-springs-zone-substation-technical-rules-exemption-revocation-application

The ERA published its draft decision on 15 May 2019 to not approve Mr Davidson's application for the exemption to be revoked because the disadvantages of requiring compliance with the Technical Rules continue to be likely to exceed the advantages.

At the time of issuing its draft decision, the ERA invited submissions from interested parties on the decision, with a requirement for submissions to be received by 14 June 2019. One submission was received, from Mr Davidson, and has been published on the ERA's website.

Having reviewed the matters raised in Mr Davidson's submission, the ERA has decided to not approve Mr Davidson's application for the exemption to be revoked because the disadvantages of requiring compliance with the Technical Rules continue to be likely to exceed the advantages.

The reasons for the ERA's decision are set out below.

Reasons

Background

Meadow Springs zone substation temporary exemption from clause 2.5.4(b) of the Technical Rules

In May 2015, Western Power requested an exemption under section 12.40 of the Access Code for a temporary exemption from compliance with clause 2.5.4(b) of the Technical Rules' capacity requirements at the Meadow Springs zone substation.

Clause 2.5.4(b) of the Technical Rules sets out the Normal Cyclic Rating (NCR) Criterion, which determines the maximum allowable power that can be transferred through the Meadow Springs zone substation under normal operating conditions.[5] The exemption allows a higher level of power to be transferred than would be the case if there were no exemption.

Western Power requested the exemption to enable it to defer capital expenditure in the Mandurah load area.

The ERA determined that the disadvantages of requiring compliance with the Technical Rules were likely to exceed the advantages and therefore, as required under section 12.41 of the Access Code, approved Western Power's exemption application in July 2015.

> Western Power is temporarily exempted from complying with the requirements of clause 2.5.4(b) (NCR Criterion) of the Transmission Planning Criteria in the Technical Rules at Meadow Springs zone substation.
>
> The stated temporary exemption applies until the completion of Stage 2 of the Mandurah load area investment strategy, or unless otherwise revoked under the provisions of the *Electricity Networks Access Code 2004*.

Amendment to clause 2.5.4(b) of the Technical Rules

When the Meadow Springs exemption was granted in July 2015, clause 2.5.4(b) of the Technical Rules was worded as follows:

> Normal Cyclic Rating (NCR) Criterion
>
> (1) The NCR risk criterion permits the loss of a portion of *power transfer* capacity at a substation following the unplanned loss of a *supply transformer* within that substation.
>
> (2) The portion of the power transfer capacity that may be lost is the lesser of:
>
> (A) 75% of the power transfer capacity of the smallest supply transformer within the substation; and

[5] The NCR criterion permits the loss of a portion of power transfer capacity at a submission following the unplanned loss of a supply transformer. As set out in the note to clause 2.5.4 of the Technical Rules, zone substations require special consideration as they form the boundary between the transmission system and the distribution system. The NCR criterion permits higher supply transformer utilisation than that permitted by the N-1 criterion but lower than that permitted by the N-0 criterion. The NCR criterion is based on sharing a common spare supply transformer among a population of supply transformers across a number of zone substations within a geographically confined area. A trade-off is the risk of limited load shedding for as long as it takes to deploy and install a spare supply transformer.

(B) 90% of the power transfer capacity of the rapid response spare supply transformer.

The clause was amended on 9 November 2016 to the following:[6]

Normal Cyclic Rating (NCR) Criterion

(1) The NCR risk criterion permits a limited amount of unmet demand for power transfer capacity following the unplanned loss of a supply transformer within a substation.

(2) The maximum power transfer through a substation subject to the NCR risk criterion must be the lesser of:

(A) 75% of the total power transfer capacity of the substation, with all supply transformers in service; or

(B) The power transfer for which the maximum unmet demand for power transfer capacity following the loss of the largest supply transformer in the substation is equal to 90% of the power transfer capacity of the rapid response spare supply transformer.

Mr Davidson's application for the exemption to be revoked

On 14 December 2016, the ERA received an application from Mr Stephen Davidson under section 12.45 of the Access Code to revoke the Meadow Springs zone substation temporary exemption from the Technical Rules.

On 19 May 2017, Mr Davidson applied to the Electricity Review Board for a review of the ERA's July 2015 decision to approve the exemption. The ERA suspended its consideration of Mr Davidson's application for the exemption to be revoked during the Electricity Review Board process.

Following completion of the Electricity Review Board review in October 2018,[7] the ERA restarted its consideration of Mr Davidson's application for the exemption to be revoked. Mr Davidson made a further submission on his application in November 2018.[8]

As considerable time had elapsed since the application was lodged, it was necessary to obtain updated information from Western Power.[9]

As Mr Davidson's application also raised concerns that Western Power's interpretation of clause 2.5.4(b) had led to inefficient investment, the ERA asked Western Power to provide information on all zone substations subject to clause 2.5.4(b).[10]

6 A copy of the decision can be found here https://www.erawa.com.au/cproot/14548/2/Final%20Decisions%20on%20Western%20Power%20Technical%20Rules%20-%20Mar%20and%20Apr%202016.pdf

7 The Electricity Review Board dismissed the application on the basis that it did not fall within the scope of the Board's jurisdiction and because Mr Davidson was not a person aggrieved.

8 Included as Appendix 4 to the ERA's consultation paper published on 14 February 2019.

9 Included as Appendix 3 to the ERA's consultation paper published on 14 February 2019. Western Power incorrectly dated the covering letter. It should be 24 January 2019, not 24 January 2018.

10 Included as Appendix 5 to the ERA's consultation paper published on 14 February 2019. Western Power incorrectly dated the covering letter. It should be 24 January 2019, not 24 January 2018.

To assist it in making its decision, the ERA appointed a technical consultant, Merz Consulting, to provide advice on the exemption.

The ERA prepared a consultation paper on Mr Davidson's application and issued an invitation for submissions on 14 February 2019 with a closing date of 15 March 2019. Three submissions were received and have been published on the ERA's website.

On 15 May 2019, the ERA published its draft decision. The draft decision was to not approve Mr Davidson's application for the exemption to be revoked.

One submission on the draft decision was received, from Mr Davidson, and has been published on the ERA's website.

Access Code Requirements

Technical Rules contain the standards, procedures and planning criteria that govern the construction and operation of an electricity network. Technical Rules are required under the Access Code for all covered networks.

Under section 12.40 of the Access Code, a service provider may apply to the ERA for an exemption from one or more requirements of its Technical Rules.

Under Section 12.41 of the Access Code, when the ERA receives an application, it must determine it as soon as practicable. The Access Code requires the ERA to consider the application as a reasonable and prudent person on reasonable technical and operational grounds and have regard to the effect the proposed exemption would have on the service providers and users of the network and any interconnected network.

The ERA must grant the exemption if it determines that in all the circumstances the disadvantages of requiring the network persons to comply with the requirement are likely to exceed the advantages.

Under section 12.43 of the Access Code, an exemption may be:

- granted for a specified period or indefinitely;
- 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
- varied or revoked by the service provider after reasonable notice to the network persons.[11]

Section 12.47 of the Access Code requires the ERA to publish a notice giving details of any exemption.

Under section 12.45 of the Access Code, a person may apply to the ERA for an exemption granted under section 12.41 to be revoked. The ERA must consider the application within a reasonable time and advise the person of the ERA's determination.

[11] "network persons" means the service provider, applicants, users and controllers of a covered network where the service provider of the covered network has applied to the ERA for an exemption from one or more requirements of the technical rules applying to the covered network.

Mr Davidson's Application

Mr Davidson's application stated that the ERA's July 2015 determination to approve the exemption was inconsistent with the Access Code objectives to promote efficient investment and:

> "[had] quite the opposite effect of allowing and fostering Western Power's economically inefficient investment in zone substations – hundreds of millions of dollars".

Mr Davidson's application also referred to the amendment to clause 2.5.4(b) of the Technical Rules proposed by Western Power in April 2016 and approved by the ERA on 9 November 2016. He referred to a submission made by Mr James Davidson on 3 June 2016 that the proposed change may not actually result in improved efficiency of investment. Mr Stephen Davidson said the submission "[was] central for the argument presented here too".

Mr Stephen Davidson requested that the ERA:

> "Revoke the decision on the basis that it fosters overinvestment in the network.
>
> Perform a techno economic analysis of the Option (of the literal application of the technical Rule 2.5.4(b) Normal Cycling Rating (NCR) Criterion of the Technical Rules 2011.
>
> List all the implicit and explicit assumptions, data and workings for that analysis, facilitating transparency and public scrutiny."

As Western Power applied for the Meadow Springs Technical Rules exemption to enable it to defer capital expenditure, it was initially unclear to the ERA how approving the exemption could have resulted in over-investment.

Based on further communication with Mr Davidson between December 2016 and May 2017, the ERA understands Mr Davidson's view to be that, if a literal interpretation of clause 2.5.4(b) as it was defined at the time of the exemption application had been applied by Western Power, no investment would have been required in the first place and therefore the request for the exemption would have been unnecessary.

Mr Davidson's application stated that the NCR capacity for the Meadow Springs zone substation, based on a literal interpretation of clause 2.5.4(b), was 62.1 MVA, rather than the 55.6 MVA assumed by Western Power in its application for the exemption.

The ERA asked Western Power to clarify the NCR capacity used in its May 2015 application.

In its response provided to the ERA in May 2017, Western Power acknowledged the capacity limit referred to in its exemption application was based on a more conservative approach than required by clause 2.5.4(b) at the time of the application and provided a corrected version of its application.[12]

Western Power identified the NCR capacity limit for Meadow Springs should have been 62.1 MVA rather than the 55.6 MVA stated in its application. Consequently, Meadow Springs did not exceed its NCR capacity limit in 2014 (as was stated in Western Power's application for the exemption). However, based on the growth rate and forecast assumed in the application, it would have become non-compliant in the 2015/16 financial year in the absence of the exemption.

[12] Included as Appendix 2 to the ERA's consultation paper published on 14 February 2019.

Western Power also noted the actual peak load for 2015/16 was 63.36 MVA. Therefore, Meadow Springs would have been non-compliant in 2015/16 (in the absence of the exemption) regardless of which calculation method was adopted.

Western Power considered that correcting the capacity limit did not alter the requirement for an exemption, as the actual peak loading at the Meadow Springs zone substation for 2015/16 exceeded the capacity limit, regardless of which calculation method was used.

Public Submissions

Under section 12.46 and in accordance with Appendix 7 of the Access Code, the ERA may undertake a public consultation process before granting, varying or revoking an exemption. The ERA issued an invitation for submissions on 14 February 2019 with a closing date for submissions of 15 March 2019.

Submissions on the consultation paper were received from Mr Davidson, Western Power and Geoff Brown & Associates. Geoff Brown & Associates provided technical advice to the ERA on Western Power's application for the exemption.

Mr Davidson submitted:

> The Consultation Paper failed to identify inconsistencies of the calculated values of the NCR capacities, exaggerated load forecasts and changed historical load data. This [is] required to carry out [a] *Forensic Engineering Analysis of Western Power's Submissions*.
>
> …
>
> Western Power's annual planning reports show that there has been no need for Decision 1 [the Meadow Springs exemption]; as the historical load has not exceeded the assigned NCR capacity of zone substations in the Mandurah Load Area. The same conclusion applies for the Mandurah Load Area as whole; namely, the large distribution transfer capacity (DTC) allows transfer of loads between the zone substations, so no individual substation has exceeded own NCR capacity.
>
> Western Power's submissions are inconsistent with the annual planning reports!

Mr Davidson considered:

> It was shown that the Western Power's creative interpretation of the NCR criterion (the basis for Decisions 1 & 2) arbitrarily and significantly reduced the zone substation capacity to below that determined by the NCR criterion of the Technical Rules 2007 & 2011, therefore leading [to] inefficient investments.

Western Power's submission stated that irrespective of which version of the NCR Criterion was used, the Meadow Springs 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 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 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.

Western Power added that the application of a '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 2016/2017 and a second investment at Mandurah substation to 2019/20.
>
> 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.

Western Power considered the NCR substation capacity determined by the 2016 version of the Technical Rules resulted in a better reliability outcome in comparison to the previous method of determination under the 2011 version of the Technical Rules and that any concerns about over investment are addressed through a risk-based planning approach and the new facilities investment test required under the Access Code:

> **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 33 MVA 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.

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.

Geoff Brown & Associates repeated the advice it provided to the ERA when the exemption was granted and queried how allowing Western Power to defer an investment, when the risk was assessed to be low, could increase costs to consumers:

> In reviewing the application for a Technical Rules exemption, we looked at Western Power's proposed investment profile in the context of the forecast demand and the power transfer capacity of the Meadow Springs and Mandurah substations. We advised the Authority that, in our view, the proposed investment and its timing was consistent with good industry practice and that any elevated risk of a loss of supply was small and could be appropriately managed by Western Power. We stand by this assessment, which did not rely on the interpretation of Clause 2.5.4(b) of the Technical Rules or on whether Western Power would be in breach of its own Technical Rules in following its proposed investment plan.
>
> We fail to see how a regulatory decision allowing Western Power to defer an investment increases costs to consumers when the risk is assessed to be low. In this case we also don't understand how a decision to revoke the exemption will save consumers money – all it would do would be to require Western Power to make an investment earlier than we have assessed is necessary.

Geoff Brown & Associates noted it did not have a view on the appropriate threshold for determining when investment in zone substation capacity is required but that:

> Modern regulatory practice is to avoid setting deterministic thresholds and to regulate outputs rather than inputs. This leaves it to a lines business to determine the appropriate asset mix to deliver the levels of service that its stakeholders expect.

Mr Davidson's submission on the draft decision makes the following assertions:

- The ERA's consultant has a conflict of interest andf that its work was not professional.[13]
- The assessment of his application for the exemption to be revoked should be based on the circumstances at the time the exemption was originally approved and should be a review of that decision.[14]
- There were errors in the ERA consultant's calculation of the NCR capacities.[15]

[13] See paragraphs 14 to 33 of Mr Davidson's submission on the ERA's draft decision.

[14] See paragraphs 1 to 13 and 34 to 37 of Mr Davidson's submission on the ERA's draft decision.

[15] See paragraphs 38 to 40 of Mr Davidson's submission on the ERA's draft decision.

The matters raised by Mr Davidson in his submission on the draft decision are addressed below.

Technical Advice

Merz Consulting was asked to review Mr Davidson's application and the public submissions received and provide advice to the ERA to assist it with its determination under sections 12.45 to 12.47 of the Access Code.

This included advising whether the calculation of the NCR capacity had been carried out correctly based on the current requirements of the Technical Rules and that the load forecasts are reasonable.

Merz Consulting was also requested to review the specification of the NCR Criterion and provide advice on whether it is appropriate for ensuring efficient levels of investment.

In his submission on the draft decision Mr Davidson asserts that Merz Consulting has a conflict of interest and that its work was not professional.

The ERA has processes in place when procuring technical advice to ensure any advice it obtains is independent and of a high standard. The ERA is satisfied the advice provided by Merz Consulting meets both these criteria.

Mr Davidson appears to have confused Merz Consulting with another firm. His submission on the draft decision refers to the "Perth Office of Merz (formerly known as Jacobs)". The ERA assumes Mr Davidson means the Jacobs Engineering Group which is a large international engineering consultancy with an office in Perth. In 2013, Jacobs Engineering acquired Sinclair Knight Merz – a private Australian company operating internationally. Merz Consulting has no relationship with either of these entities.

As set out in section 2.1.4 of its report to the ERA for the draft decision, Merz Consulting calculated the NCR capacity for the Meadow Springs zone substation based on the current version of clause 2.5.4(b) of the Technical Rules to be 55.06 MW, which it advised was consistent with the 55.61 MVA calculated by Western Power.

As noted above, Mr Davidson's submission on the draft decision considers there was an error in Merz Consulting's calculation of the NCR capacity. Merz Consulting has reviewed Mr Davidson's submission and does not consider his proposed calculation is correct. However, Merz Consulting has modified its calculation to make it more accurate. The ERA is satisfied this modification has no material effect on the calculation or the conclusion of Merz Consulting's report.[16]

Mr Davidson's submissions prior to the draft decision raised concerns about inconsistencies in actual loads and forecast loads provided by Western Power at various times in the past to the ERA. He also raises concerns about data included in the *Mandurah Load Area Non-Network Options Report* published on Western Power's website in June 2016.[17]

[16] Letter to Economic Regulation Authority from Merz Consulting, 19 July 2019.

[17] The *Mandurah Load Area Non-Network Options Report* was prepared and published in 2016 because Western Power was seeking submissions from non-network solution proponents to address network capacity constraints in the Mandurah load area.

In his submission on the draft decision, Mr Davidson considers Merz Consulting did not adequately review the load forecasts and that Western Power's load forecasts were unrealistic.

In its report to the ERA for the draft decision, Merz Consulting advised that Western Power's current load forecasts were reasonable for the purposes of assessing whether the exemption is required.

As set out in the draft decision, Merz Consulting did not review the *Mandurah Load Area Non-Network Options Report* as it was not relevant to the current assessment of the exemption. Similarly, Merz only reviewed current information provided by Western Power to the ERA as previous versions are no longer relevant to now considering the application for the exemption to be revoked.

As set out in the draft decision, the ERA recognises, as claimed by Mr Davidson, there may be inconsistencies in load and NCR capacity figures published by Western Power in various reports over the last five years or so. Some of these apparent inconsistences may reflect updated data and forecasts. In any case, for the purposes of this decision, the ERA has reviewed the latest information provided by Western Power and, taking account of the technical advice provided by Merz Consulting, is satisfied that the information is reasonable.

As requested by the ERA, Merz Consulting reviewed the specification of the NCR Criterion and whether it ensured efficient levels of investment. Merz identified several issues which are set out in its report. These included:

- Opportunities for increased clarity of definitions and drafting, including the meaning of "design the transmission system" (section 3.1 of its report).
- The previous version of the NCR Criterion could result in substation utilisation beyond that which can be typically delivered operationally (see section 3.3 of its report).[18]
- The current version of the NCR Criterion does not deliver a consistent capital efficiency benefit as the number of transformers at the substation increase, with no benefit for zone substations with four transformers (see section 3.3 of its report).

These issues do not affect the ERA's view on the requirement for the Meadow Springs zone substation Technical Rules exemption and fall outside the scope of this decision.

The Access Code currently permits only Western Power or the Chair of the Technical Rules Committee or a service provider of an interconnected network to initiate an amendment of the Technical Rules.

Considerations of the ERA

In considering whether to approve an exemption from the Technical Rules the ERA 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.

[18] "Utilisation" is the maximum permitted substation throughput under the planning criteria divided by the total permanent installed capacity at the substation. Merz Consulting advises utilisation can be used as a proxy for capital efficiency.

To determine whether an exemption should be revoked, the ERA must determine, based on current information, whether or not the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages. The exemption must not be revoked if the ERA determines that in all the circumstances the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages.

Mr Davidson's submission on the draft decision considers the assessment of his application for the exemption to be revoked should be based on the circumstances at the time the exemption was originally approved and should be a review of that decision.

The provision under which Mr Davidson has lodged his application – section 12.45 – is for an exemption to be revoked. It does not provide for review of the previous decision by the ERA to grant the exemption. The exercise is not about whether the exemption should be revoked retrospectively from the time that it was granted but is about looking at whether the exemption remains appropriate now and into the future.

However, the ERA notes Western Power's corrections to the capacity limit it used in its application for the exemption, as outlined above, do not affect the ERA's decision to grant the exemption as under the version of clause 2.5.4(b) in place at the time of the exemption, actual and forecast loads have and will exceed the NCR Criterion for the Meadow Springs zone substation.

Although the ERA's assessment must be based on the current position, including the latest load forecasts and current version of the Technical Rules, reflecting on the reasons for the original decision to grant the exemption provides a starting point for the ERA's considerations.

The reason Western Power applied for the temporary exemption in May 2015 was to enable it to defer capital expenditure:

> …Western Power's 2014 load forecasts indicate the NCR capacity of the Mandurah and the Meadow Springs zone substations in the Mandurah load area will be exceeded within the five year outlook. The Mandurah zone substation has forecast non-compliance exposure with the NCR Criterion from 2016/17 and the Meadow Springs zone substation has forecast non-compliance exposure with NCR Criterion from 2015/16.
>
> Western Power studies, based on the Technical Rules planning criteria, have shown that in order to maintain compliance obligations at both substations, the required network investment option (Mandurah Extension Project) would involve significant substation augmentation at Mandurah. The project cost estimate is $27 million.
>
> Western Power has undertaken a cost benefit analysis using risk-based planning techniques. Based on this analysis, Western Power proposes deferring the Mandurah Extension Project to 2019/20 and, instead, bringing forward capacity expansion at the Meadow Springs substation to 2016/17. The Meadow Springs expansion project cost estimate is $9.2 million.

The expanded Meadow Springs zone substation would be able to take on future load growth that would otherwise have been required to be supplied by the Mandurah zone substation, which enabled expansion of the Mandurah zone substation to be deferred.

In its determination on the exemption application, the ERA agreed with Western Power that a temporary exemption was necessary to enable it to adopt a more efficient investment strategy:

> …there is considerable uncertainty in the demand forecasts for the Mandurah area. Proceeding to invest now based on the prescriptive requirements of the Technical Rules could result in significant underutilised assets in future.

> Based on Western Power's application and GBA's advice, it appears the risk of interruption to customers over the next five years is small and mitigation measures can be put in place to mitigate this further. The Authority also notes Western Power has a transformer capacity augmentation plan in place to ensure that both the Mandurah and Meadow Springs substations will comply with the NCR criterion requirement of the Technical Rules by 2020. Furthermore, this investment could be brought forward in the event that projected demand increased above the current forecasts.
>
> Taking account of the information in Western Power's application and the advice of GBA, the Authority considers Western Power's proposed investment strategy provides a balance between minimising the financial risk of premature investment in the Mandurah load area and the risk to customer supplies. It also provides flexibility for changes to be made in response to changes in forecast demand.
>
> Accordingly, the Authority considers an exemption from clause 2.5.4(b) of the Technical Rules to enable Western Power to adopt its proposed risk based approach, rather than the deterministic requirement of the Technical Rules is appropriate.

The ERA considered:

> …Western Power's proposed risk based investment strategy is more efficient than what would be required using the deterministic planning criterion in the Technical Rules. To enable Western Power to use a different planning methodology from the one prescribed in the Technical Rules, an exemption is required.

The temporary exemption enabled Western Power to initially defer investment in the Meadow Springs substation by two years to 2016/2017 and a second investment at the Mandurah substation to 2019/20. In its submission on Mr Davidson's application, Western Power notes that reductions in load growth forecasts since the temporary exemption was granted enabled it to further delay installation of a third transformer at Meadow Springs and investment at the Mandurah substation.

The ERA has reviewed the most recent information provided by Western Power. Based on the advice provided by Merz Consulting it is satisfied Western Power's load forecasts are reasonable and the calculation of the Meadow Spring's NCR capacity is consistent with the current requirements of clause 2.5.4(b).

The forecast peak loads at the Meadow Springs zone substation will continue to exceed the NCR capacity based on the existing two transformers.

Consequently, the temporary exemption continues to be necessary to enable Western Power to continue to use its risk-based planning approach for the Mandurah load area rather than apply the deterministic approach required under the Technical Rules.

As set out in the draft decision, Western Power's risk-based investment strategy for the Mandurah area continues to provide a balance between minimising the financial risk of premature investment in the Mandurah load area and the risk to customer supply, and provides flexibility for changes to be made in response to changes in forecast demand.

On that basis, the ERA considers there continues to be strong evidence that the disadvantages of requiring compliance with the Technical Rules are likely to exceed the advantages and therefore the Meadow Springs zone substation Technical Rules temporary exemption should not be revoked.