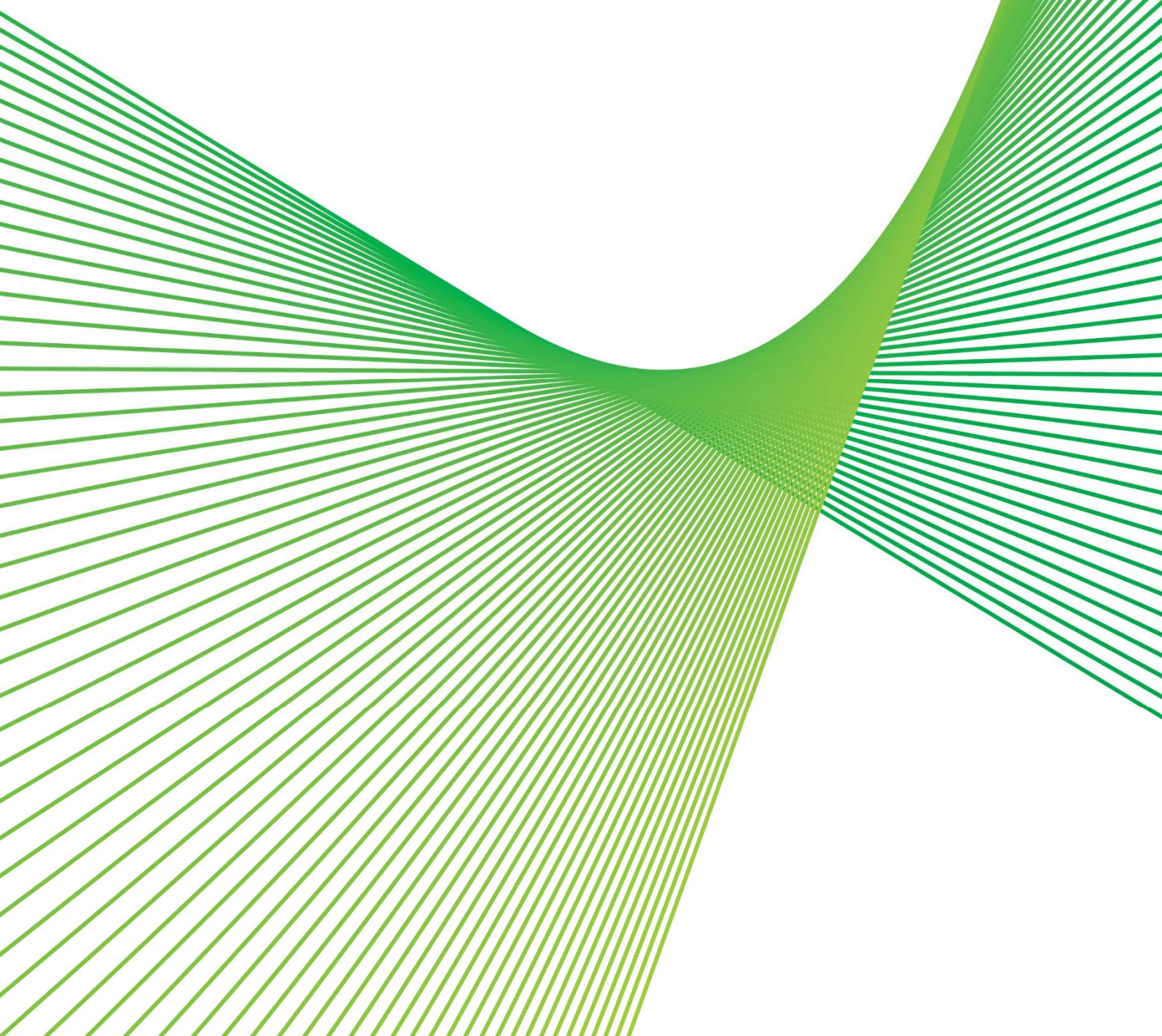


Summary of Maintaining safe and reliable operation of Buronga substation

RIT-T Project Specification Consultation Report

Issue date: 15 August 2024



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Summary

Buronga substation is a fundamental part of the 220 kV NSW Transmission Network and Victorian Interconnector, and is being expanded as part of Project EnergyConnect, a new high voltage interconnector between New South Wales and South Australia.

Buronga substation connects several renewable energy sources to the National Electricity Market (NEM) and has been declared part of the access rights network for the South West REZ Access Scheme by the NSW Government.

It is anticipated that the site will remain a crucial energy hub in the transmission network into the foreseeable future.

The purpose of this PSCR is to examine and consult on options to address the deteriorating condition of the identified end of life assets at Buronga substation to ensure the safe and secure operation of our network.

Identified need: Ensure the safe and reliable operation of our transmission network by managing the risk of end of life assets

The identified need for this project is to ensure the safe and reliable operation of our transmission network by addressing the risk of failure of assets that are approaching the end of their technical life.

The X2 transmission line (from Buronga to Broken Hill) is a radial feed to Broken Hill substation so maintaining a reliable supply to the area when Line X2 is out of service requires significant planning and coordination with Broken Hill loads in addition to running the gas turbine generators to supply the Broken Hill 22 kV load.

During asset replacement planning of Buronga X2 feeder circuit breaker (CB), it was identified that the condition of the bus disconnecter, line disconnecter and bypass disconnecter prevent outage access for the CB replacement. Due to the disconnecter functional failure a X2 transmission line, outage is required to access the CB.

Based on findings from our assessment, all 10 220 kV ASEA disconnectors at Buronga substation are in similar condition, being at risk of operational challenges or functional failure. Currently an X2 transmission line outage is required maintenance, defect or replacement works access to disconnectors and associated CBs attached to Buronga 220 kV B2 Bus Section. We have also identified 1 Live Head Circuit Breaker (LHCB) that have reached or be approaching the end of their technical life by 2027/28. A full list of assets in scope are in Appendix C below.

We have classified this RIT-T as a 'market benefits' driven RIT-T as the economic assessment is not being progressed specifically to meet a mandated reliability standard but by the net benefits that are expected to be generated for end-customers. Given the quantity of CBs that have been identified for replacement, we consider it prudent and cost effective to manage this risk through a single asset replacement program. This replacement will help limit the amount of in-service failures that occur (along with the associated interruptions to customer load, and safety and environmental consequences).

Credible options considered

We consider that there are three credible network options that can meet the identified need.

These options are summarised in Table E-1.

Table E-1: Summary of the credible options

| Option | Description | Capital costs (\$m +/- 25%, \$2024/25) |
|----------|--|--|
| Option 1 | In-situ like-for-like replacements through Asset Renewal Strategies ¹ | 6.86 (±25%) |
| Option 2 | Like-for-like replacement in alternate bay location | 5.92(±25%) |
| Option 3 | Replacement with double bus selectable feeder bays | 8.44 (±25%) |

Non-network options are not expected to be able to assist in this RIT-T

We do not consider non-network options to be commercially and technically feasible to assist with meeting the identified need for this RIT-T. Non-network options are not able to mitigate the increasing risks of failure of ageing assets.

Draft Conclusion

This PSCR finds that implementation of Option 3 is the preferred option at this draft stage of the RIT-T process. This option includes the re-construction of the current X2 feeder bay and the 0X1 feeder bay, providing X2 feeder supply availability from both A and B bus.

The capital cost of this option is approximately \$8.44 million (in \$2024/25). The works are expected to be undertaken between 2023/24 and 2025/26. Planning, design, development and procurement (including completion of the RIT-T) will occur between 2023/24 and 2024/25, while project delivery and construction will occur in 2024/25. All works are expected to be completed by 2025/26. Routine operating and maintenance costs are estimated at approximately \$64,858 per annum (in \$2024/25).² All works will be completed in accordance with the relevant standards and components shall be replaced to have minimal modification to the wider transmission network. Necessary outages of relevant assets in service will be planned appropriately to complete the works with minimal network impact.

Exemption from preparing a Project Assessment Draft Report

Subject to the identification of additional credible options during the consultation period, publication of a Project Assessment Draft Report (PADR) is not required for this RIT-T as we consider that the conditions in clause 5.16.4(z1) of the NER exempting RIT-T proponents from providing a PADR have been met.

Specifically, production of a PADR is not required because:

- the estimated capital cost of the proposed preferred option being less than \$46 million³;

¹ Renewal and maintenance strategies for transmission line assets are defined in [Transgrid's Renewal and Maintenance Strategy 2021/22](#).

² Average operating costs over the period 2024/25 to 2051/52.

³ Varied from \$43m to \$46m based on the [AER Final Determination: Cost threshold review](#) November 2021.

- the PSCR states:
 - > the proposed preferred option, together with the reasons for the proposed preferred option;
 - > the RIT-T is exempt from producing a PADR; and
 - > the proposed preferred option and any other credible option will not have a material market benefit for the classes of market benefit specified in clause 5.15A.2(b)(4), with the exception of market benefits arising from changes in voluntary and involuntary load shedding;
- the RIT-T proponent considers that there were no PSCR submissions identifying additional credible options that could deliver a material market benefit; and
- the PACR must address any issues raised in relation to the proposed preferred option during the PSCR consultation.

If an additional credible option that could deliver a material market benefit is identified during the consultation period, then we will produce a PADR that includes an assessment of the net economic benefit of each additional credible option.

If no additional credible options with material market benefits are identified during the consultation period, then the next step in this RIT-T will be the publication of a Project Assessment Conclusions Report (PACR) that addresses all submissions received, including any issues in relation to the proposed preferred option raised during the consultation period.⁴

Submissions and next steps

We welcome written submissions on materials contained in this PSCR.

Submissions are due on 15 August 2024⁵ and should be emailed to our Regulation team via regulatory.consultation@Transgrid.com.au.⁶ In the subject field, please reference 'Buronga substation PSCR.' At the conclusion of the consultation process, all submissions received will be published on our website. If you do not wish for your submission to be made public, please clearly specify this at the time of lodgement.

Should we consider that no additional credible options were identified during the consultation period, we intend to produce a PACR that addresses all submissions received including any issues in relation to the proposed preferred option raised during the consultation period. Subject to additional credible options being identified, we anticipate publication of a PACR by January 2025.

⁴ In accordance with NER clause 5.16.4(z2).

⁵ Consultation period is for 12 weeks, additional days have been added to cover public holidays

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