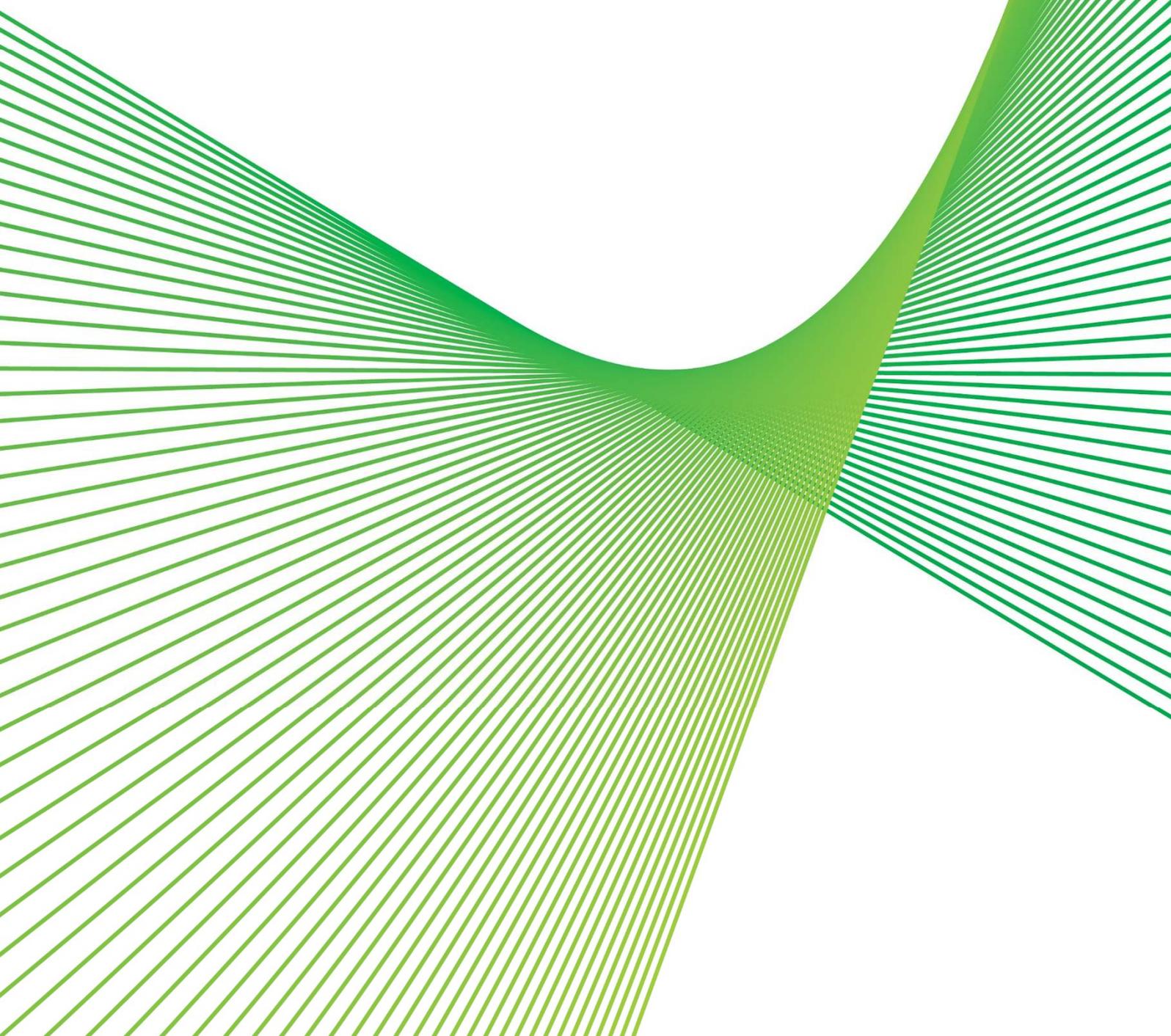


# Summary: Maintaining safe and reliable operation of Buronga substation

RIT-T Project Assessment Conclusions Report

Issue date: 6 December 2024



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## Summary

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We are applying the Regulatory Investment Test for Transmission (RIT-T) to options for maintaining the safe and reliable operation of Buronga Substation. Publication of this Project Assessment Conclusions Report (PACR) represents the final step in the RIT-T process.

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.

### **Identified need: ensure the safe and reliable operation of Buronga substation**

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 at Buronga substation.

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.

Transgrid notes the recent outage of the X2 line following an extreme weather event that began on 16 October 2024. Transgrid confirms that this event has not impacted the identified need, or the credible options considered. Line X2 travels 250km from Buronga to Broken Hill and the seven towers that were damaged were located close to Broken Hill.

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).

### No submissions received in response to the Project Specification Consultation Report

We published a Project Specification Consultation Report (PSCR) on 15 August 2024 and invited written submissions on the material presented within the document. No submissions were received in response to the PSCR.

### No material developments since publication of the PSCR

No additional credible options were identified during the consultation period following publication of the PSCR. In addition, no material changes have occurred since the PSCR that have made an impact on the preferred option.

### Credible options considered

We identified three credible network options that meet the identified need from a technical, commercial, and project delivery perspective<sup>1</sup>. These options are summarised in Table E-1.

Table E-1 Summary of credible options, \$2024/25

Option	Description	Capital costs (\$m +/- 25%, \$2024/25)
Option 1	In-situ like-for-like replacements through Asset Renewal Strategies <sup>2</sup>	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%)

### No submissions received in relation to non-network options

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 risks associated with failure of the identified substation assets that have reached or are approaching the end of their technical life. In addition, we did not receive any submissions from proponents of these solutions in response to the PSCR.

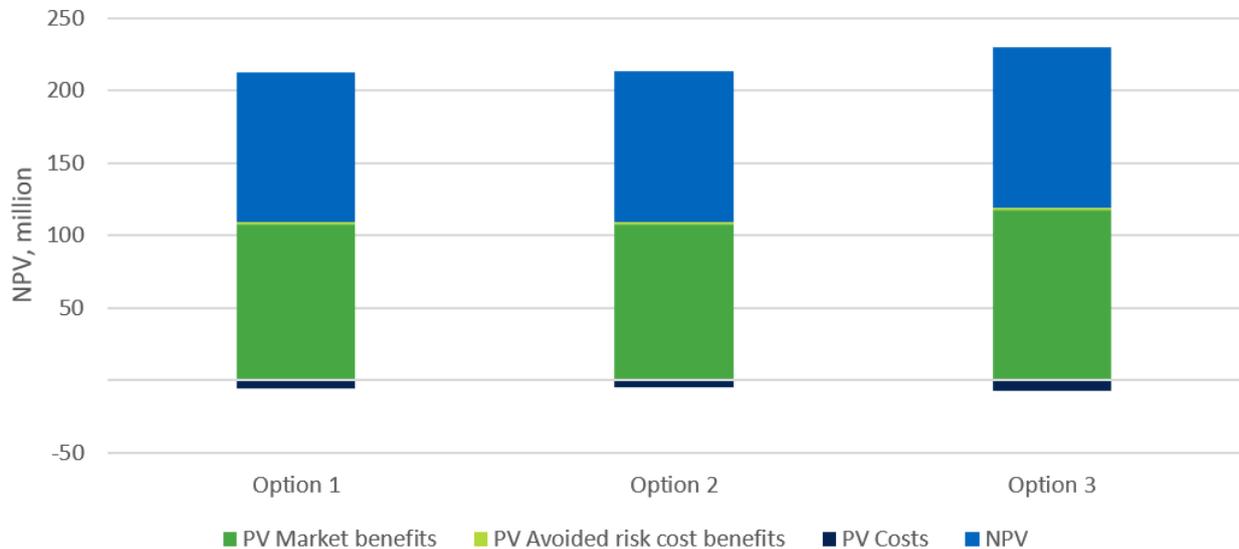
### Option 3 delivers the highest net economic benefit and will meet NER requirements

We have assessed that Option 3 is the best performing option under all three reasonable scenarios considered in this PACR. 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. On a weighted basis, where each scenario is weighted equally, Option 3 is expected to deliver net benefits of approximately \$110.99 million.

<sup>1</sup> As per clause 5.15.2(a) of the NER.

<sup>2</sup> Renewal and maintenance strategies for transmission line assets are defined in [Transgrid's Renewal and Maintenance Strategy 2021/22](#).

Figure E-1 NPV of net economic benefits (\$2024/25 m)



## Conclusion

This PACR finds that Option 3 is the preferred option to address the identified need. Option 3 involves 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). 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).

## Next steps

This PACR represents the final step of the consultation process in relation to the application of the Regulatory Investment Test for Transmission (RIT-T) process undertaken by Transgrid. It follows a PSCR released in August 2024. No submissions were received in response to the PSCR.

The second step of the RIT-T process, production of a Project Assessment Draft Report (PADR), was not required as Transgrid considers its investment in relation to the preferred option to be exempt from that part of the RIT-T process under NER clause 5.16.4(z1). Production of a PADR is not required due to:

- the estimated capital cost of the preferred option being less than \$54 million;
- the PSCR stating:
  - 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 options 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;

- no PSCR submissions identifying additional credible options that could deliver a material market benefit; and
- the PACR addressing any issues raised in relation to the proposed preferred option during the PSCR consultation.

Parties wishing to raise a dispute notice with the AER may do so prior to 17 January 2025<sup>3</sup> (30 days after publication of this PACR). Any dispute notices raised during this period will be addressed by the AER within 40 to 100 days, after which the formal RIT-T process will conclude.

Further details on the RIT-T can be obtained from Transgrid's Regulation team via [regulatory.consultation@transgrid.com.au](mailto:regulatory.consultation@transgrid.com.au). In the subject field, please reference 'Buronga substation renewal PACR'.

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<sup>3</sup> Additional days have been added to cover public holidays