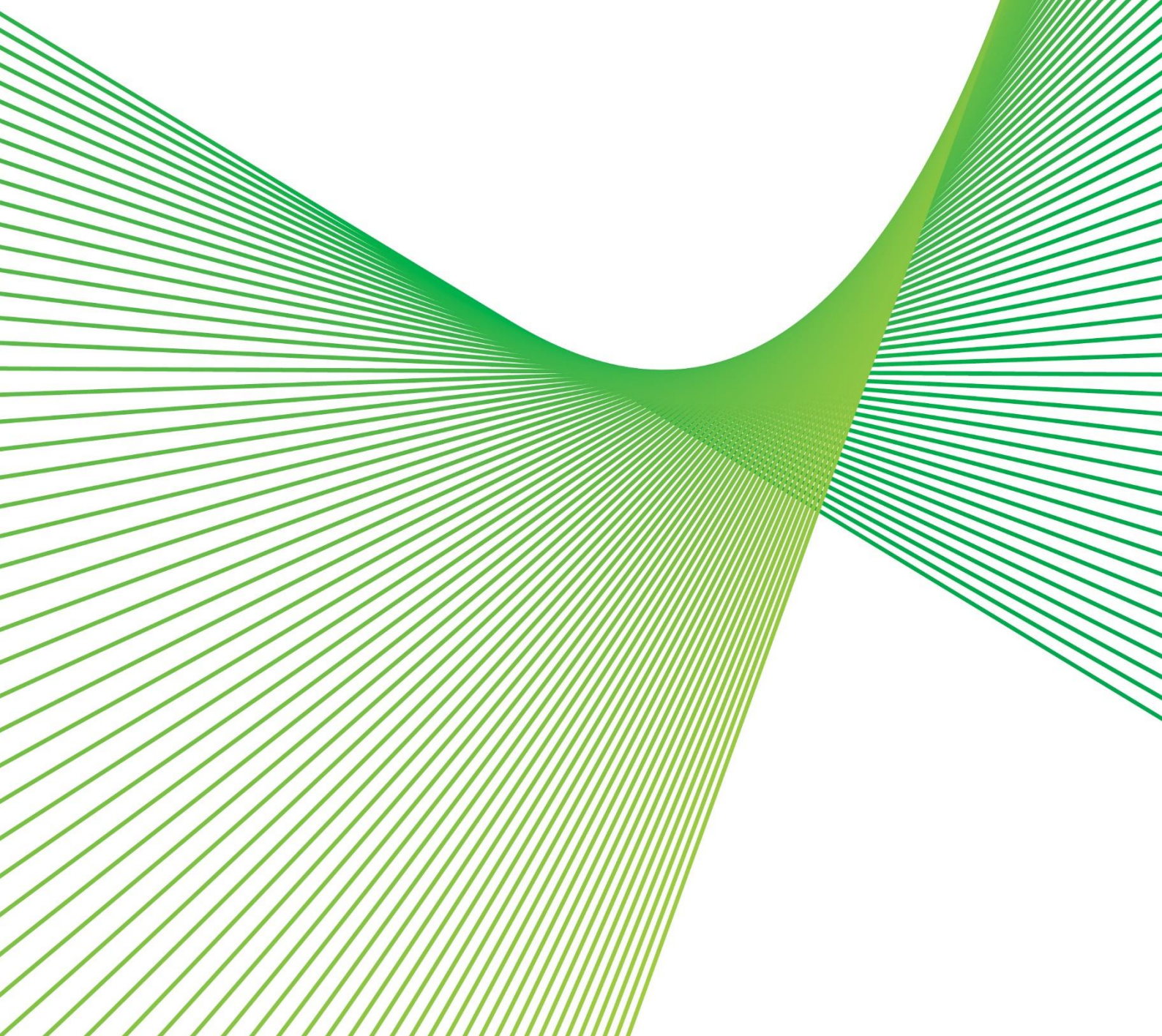


# **Summary: Maintaining safe and reliable operation of Sydney East, Wagga 132 kV, and Dapto substations**

RIT-T Project Specification Consultation Report

Issue date: 8 April 2025



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## Summary

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We are applying the Regulatory Investment Test for Transmission (RIT-T) to options for mitigating the risk Transgrid, and its ultimate downstream consumers, face in terms of corroding gantries at the Sydney East, Wagga 132 kV, and Dapto substations. Publication of this Project Specification Consultation Report (PSCR) represents the first step in the RIT-T process.

Substation gantries are essential for the safe and reliable operation of the whole substation. The gantries at the Sydney East, Wagga 132 kV, and Dapto substations display evidence of corrosion, which, if unaddressed, may result in the failure of the steelwork, connection bolts, holding down bolts, or baseplates. The failure of the gantries may in-turn result in a loss of supply to end consumers, injury to staff and damage to other critical substation equipment. These events may also affect more than one system element at the same time, which would require significant time to rectify.

The purpose of this PSCR is to examine and consult in options to address the corrosion of the existing gantries at the Sydney East, Wagga 132 kV, and Dapto substations and reduce the likelihood of prolonged and involuntary load shedding across NSW.

### **Identified need: maintain safe and reliable operation of the Sydney East, Wagga 132 kV, and Dapto substations**

The identified need for this project is to maintain the safe and reliable operation of the Sydney East, Wagga 132 kV, and Dapto substations and the broader transmission network in NSW by addressing the risk of gantry failure.

Condition assessments performed through our routine maintenance program has shown degradation in the condition of these gantries which will increase their risk of failure. Without intervention, other than ongoing business-as-usual maintenance, the assets are expected to deteriorate further and more rapidly. This will increase the risk of supply interruptions to our customers as well as safety, environmental and financial consequences.

Transgrid considers the proposed investment to be a 'market benefits' driven RIT-T as the proposed investment is for the purpose of maintaining network security at critical transmission substations, which is estimated to deliver significant benefits in terms of avoided involuntary load shedding (ie, compared to if nothing is done and corrosion worsens). The investment will also assist Transgrid to manage and mitigate safety risks that would otherwise arise from a failure in substation gantries<sup>1</sup>.

While the purpose of the proposed investment has similarities to those made under a reliability corrective action identified need (ie, to avoid involuntary load shedding), the scope of the current reliability standards applicable to Transgrid do not extend to multiple failures of transmission network elements that would be expected to result from a failure of substation gantries (e.g., damage to and failure of multiple busbar sections at the same substation). It follows that the proposed investment is driven by a 'market benefits' identified

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<sup>1</sup> Transgrid manages and mitigates safety risk to ensure they are below risk tolerance levels or 'As Low As Reasonably Practicable' ('ALARP'), in accordance with Transgrid's obligations under the New South Wales *Electricity Supply (Safety and Network Management) Regulation 2014* and Transgrid's Electricity Network Safety Management System (ENSMS). In particular, risks for Transgrid and its consumers are mitigated unless it is possible to demonstrate that the cost involved in further reducing the risk would be grossly disproportionate to the benefit gained.

need given the lack of externally imposed obligations relating to multiple failures of transmission network elements.

## Credible options considered

We have considered that there is only one credible option from a technical, commercial, and project delivery perspective. This is summarised in Table E-1.

Table E-1 Summary of credible options

Option	Description	Capital costs (\$m, +/- 25%, Real 2024-25)	Operating costs (per year, Real \$2024-25)
Option 1	Steelwork replacement	27.93 ( $\pm$ 25%)	91,298

The preferred option is Option 1, as it has the highest weighted NPV result of the technically and commercially feasible options considered at this stage of the RIT-T process. In consideration of the delivery requirements and the economic benefit NPV analysis for the need, its optimal timing is 2026/27.

It is expected that the replacement works will be undertaken in various phases between January to December in both 2026 and 2031.

The total estimated capital cost is \$27.93m (\$2024-25). The breakdown of capital costs for each substation is listed below:

- Sydney East: \$4.78m
- Wagga 132 kV: \$8.04m
- Dapto: \$15.11m

It is expected that more accurate cost estimates will be provided in the Project Assessment Conclusion Report (PACR) as detailed scoping is progressed.

Two other options were considered but not progressed including on/offsite refurbishment and elimination of gantries by alternate methods. The reasons these options were not progressed are outlined in section 3.3 of this PSCR.

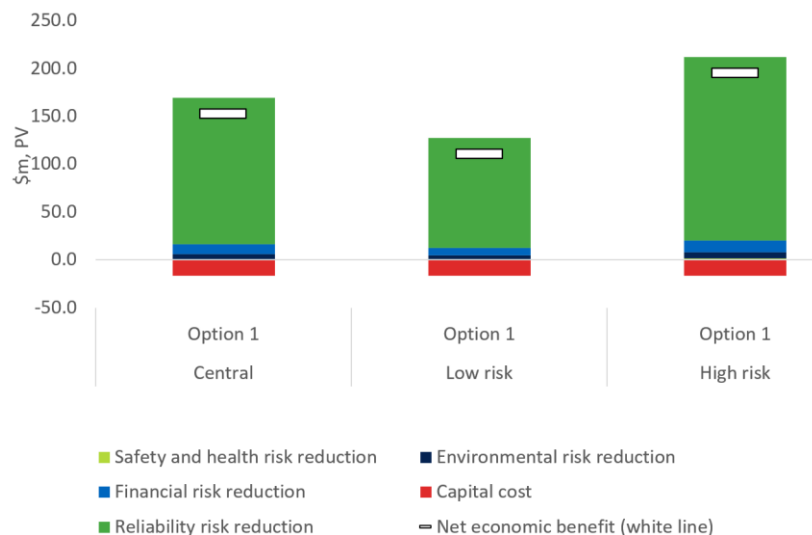
## Non-network options are not expected to be able to assist in this RIT-T

We do not consider that non-network solutions can assist with meeting the identified need for this RIT-T. This is driven by the fundamental role that the identified gantries play in the transmission of electricity at a substation, the enduring need for the Sydney East, Wagga 132 kV, and Dapto substations.

## The replacement works are found to deliver strong positive net benefits

The figure below provides a breakdown of estimated benefits, showing almost all of the benefits are derived from avoided involuntary load shedding, while other avoided costs contribute relatively small amounts to overall gross benefits.

Figure E-1 Net economic benefits (\$m, PV)



The table below summaries the net market benefit in NPV terms across the three scenarios, as well as on a weighted basis. The table shows that replacement of the assets is found to have positive net market benefits for all scenarios investigated. On a weighted basis, this investment is expected to deliver approximately \$152.82 million in net market benefits.

Figure E-2 Present value of net benefits relative to the base case (\$m, PV)

Option/Scenario	Central	Low benefit	High benefit	Weighted
Option 1	\$152.82	\$110.44	\$195.201	\$152.82

## Draft conclusion

Replacement works on the identified assets is the preferred option at this draft stage. In particular, this involves the replacement of substation gantries at Transgrid's Sydney East, Wagga 132 kV, and Dapto substations, including the replacement of insulators and conductor fittings. By undertaking the replacement works, the life of the affected substation gantries at the Sydney East, Wagga 132 kV, and Dapto substations are expected to be extended by approximately 45 years.

Option 1 is found to have positive net benefits under all scenarios investigated and, on a weighted basis, will deliver \$152.82 million in net economic benefits over the assessment period.

The estimated capital expenditure associated with this option is \$27.93 million. The work is being executed in two stages:

- Stage One: Planning, design, development and procurement (including completion of the RIT-T) will occur between 2023/24 and 2025/26, while project delivery and construction will occur in 2025/26 and 2026/27. All works are expected to be completed by 2026/27.
- Stage Two: Planning, design, development and procurement will occur between 2028/29 and 2030/31, while project delivery and construction will occur in 2030/31 and 2031/32. All works are expected to be completed by 2031/32.

Routine operating and maintenance costs across both stages are estimated at approximately \$91,298 per annum (in \$2024/25).

All works would be completed in accordance with the relevant standards with minimal modification to the wider transmission assets. Necessary outages of affected line(s) in service would be planned appropriately in order to complete the works with minimal impact on the network.

## Exemption from preparing a PADR

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 preferred option is less than \$54 million;<sup>2</sup>
- we have identified in this PSCR our preferred option and the reasons for that option, and noted that we will be exempt from publishing the PADR for our preferred option; and
- we consider that the preferred option and any other credible options do not have a material market benefit (other than benefits associated with changes in voluntary load curtailment and involuntary load shedding).

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.<sup>3</sup>

## Submissions and next steps

We welcome written submissions on materials contained in this PSCR. Submissions are due on 10 July 2025<sup>4</sup>.

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<sup>2</sup> Varied from to \$54m based on the [AER Final Determination: Cost threshold review](#), November 2024.

<sup>3</sup> In accordance with NER clause 5.16.4(z2).

<sup>4</sup> Consultation period is for 12 weeks, additional days have been added to cover public holidays.

Submissions should be emailed to our Regulation team via [regulatory.consultation@transgrid.com.au](mailto:regulatory.consultation@transgrid.com.au).<sup>5</sup> In the subject field, please reference 'Steelworks Remediation Program 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.

Subject to additional credible options being identified during consultation, we anticipate publication of a PACR by August 2025.

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<sup>5</sup> We are bound by the *Privacy Act 1988 (Cth)*. In making submissions in response to this consultation process, we will collect and hold your personal information such as your name, email address, employer and phone number for the purpose of receiving and following up on your submissions. If you do not wish for your submission to be made public, please clearly specify this at the time of lodgement. See Privacy Notice within the Disclaimer for more details.



