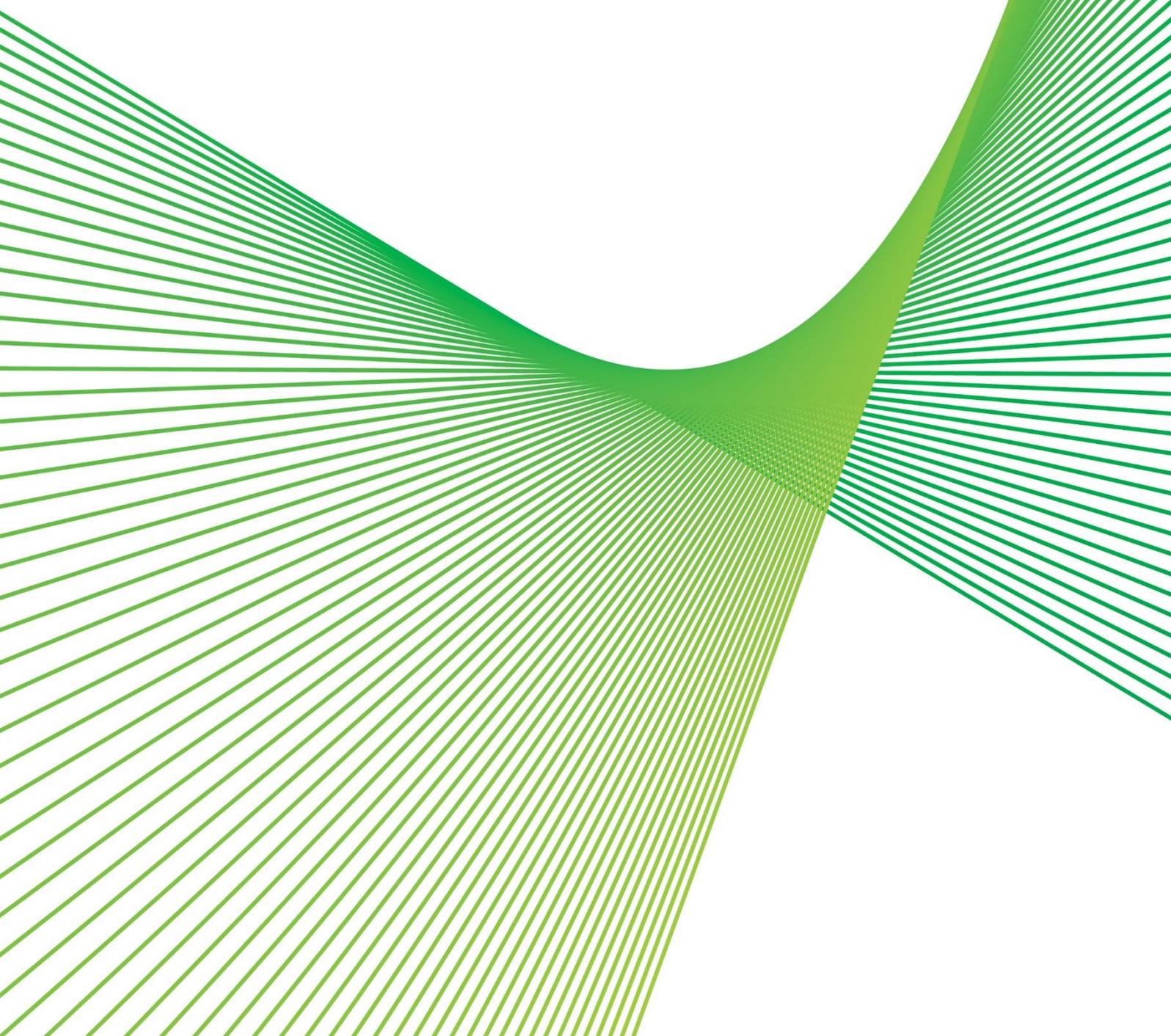


Summary: Managing risk on Line 23

RIT-T Project Assessment Conclusions Report

Issue date: 8 August 2023



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Summary

We are applying the Regulatory Investment Test for Transmission (RIT-T) to options for mitigating safety, environmental (bushfire) and financial (high reactive maintenance) risks caused by the deteriorating condition of some components on the 330 kV line running between the Vales Point and Munmorah substations on the Central Coast ('Line 23'). Publication of this Project Assessment Conclusions Report (PACR) represents the final step in the RIT-T process.

Line 23 is a single-circuit 330 kV, steel tower transmission line with a route length of 7 km that was constructed in 1965. Line 23 is comprised of 24 structures:

- 12 suspension towers;
- 11 tension towers; and
- 1 wood pole suspension structure.

The line is a key link in the Central Coast transmission network and its route traverses rural areas near the Vales Point and Colongra power stations around Lake Macquarie.

Condition information has identified that majority of the structures on Line 23 either have condition issues, or the components on them have condition issues. Affected components include the conductor, conductor fittings, corona rings, earth wire (and its fittings) and porcelain insulators. These structures and components require refurbishment to address asset health and maintain appropriate risk levels across the network.

Many of the condition issues on Line 23 are due to corrosion. Corrosion greatly increases the likelihood of conductor drops and presents consequent safety and bushfire risk to our personnel and the public, as well as resulting in reactive maintenance costs to repair the failed elements. The bushfire risks are exacerbated for the line in question as they traverse substantial sections of bushland, much of which surrounds rural residential areas. Line 23 also crosses the Pacific Highway at Doyalson, which raises the safety risks.

As asset conditions deteriorate over time, the likelihood of failure and subsequent risks will increase should these issues not be addressed.

Identified need: managing risks on Line 23 transmission line

If action is not taken, the condition of the line is expected to expose us and our customers to increasing levels of risk going forward, as the likelihood of failure increases. There are significant safety and bushfire risks under the 'do nothing' base case, as well as higher expected costs associated with reactive maintenance that may be required under emergency conditions ('financial risks').

The proposed investment will enable us to manage safety, environmental and financial risks on Line 23.

Options considered under this RIT-T have been assessed relative to a base case. Under the base case, no proactive capital investment is made and the condition of the line will continue to deteriorate.

Further condition deterioration of the affected assets due to corrosion would mean an increase in safety and bushfire risks as the likelihood of failure increases. If left untreated, corrosion of some of the vital components of the steel towers could result in incidents such as conductor drop and tower collapse. Such incidents could have serious safety consequences for nearby residents and members of the public, as well as our field crew who may be working on or near the assets. These incidents also pose significant environmental risks through potential bushfires.

We manage and mitigate risks to ensure they are below risk tolerance levels or ‘As Low As Reasonably Practicable’ (‘ALARP’), in accordance with our obligations under the *New South Wales Electricity Supply (Safety and Network Management) Regulation 2014* and our Electricity Network Safety Management System (ENSMS).¹

The proposed investment will enable us to continue to manage and operate this part of the network to a safety and risk mitigation level of ALARP. Consequently, it is considered a reliability corrective action under the RIT-T. A reliability corrective action differs from a ‘market benefits’-driven RIT-T in that the preferred option is permitted to have negative net economic benefits on account of it being required to meet an externally imposed obligation on the network business.

No submissions received in response to the Project Specification Consultation Report

We published a Project Specification Consultation Report (PSCR) on 14 March 2023 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 consider there are two credible options that would meet the identified need from a technical, commercial, and project delivery perspective.² These are summarised in Table E-1.

Table E-1 Summary of credible options, \$2021/22

Option	Description	Capital costs, \$m	Operating costs (per year), \$
Option 1	Replace suspension structures that have priority condition issues and remediate all line components on tension structures	12.3	10,120
Option 2	Replace all suspension structures and remediate all line components on tension structures	13.4	10,120

Both options are not expected to affect annual routine operating costs (i.e., the amounts shown above are the same as under the base case) since they do not affect the frequency of inspections. They do however affect the reactive maintenance costs relative to the base case (which are reflected in reduced ‘financial risk costs’).

Non-network options are not expected 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, as non-network options will not mitigate the safety and environment

¹ Our ENSMS follows the International Organization for Standardization’s ISO31000 risk management framework which requires following a hierarchy of hazard mitigation approach.

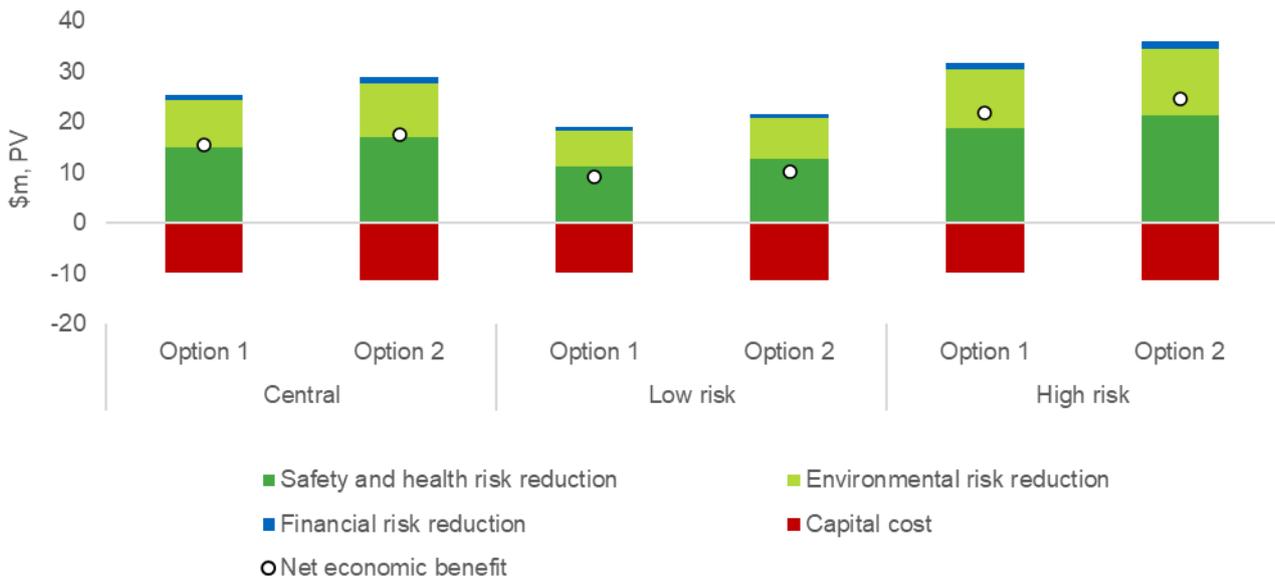
² As per clause 5.15.2(a) of the NER.

(bushfire) risk posed as a result of corrosion-related asset deterioration. In addition, we did not receive any submissions from proponents of these solutions in response to the PSCR.

Conclusion: replacement of all suspension structures and remediation of all line components is optimal

Under all scenarios, the costs of mitigating the risks under both options are found to be significantly outweighed by the expected benefit of avoiding the risks. Option 2 is the preferred option with the estimated net benefits of Option 2 being 12 per cent greater than Option 1 on a weighted basis.

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



Option 2 (replacing all suspension structures and remediate all line components on tension structures) is therefore the preferred option to meet the identified need for this RIT-T. Moving forward with this option is the most prudent and economically efficient solution to manage and mitigate safety and environmental risk to ALARP. Consequently, it will ensure our obligations under the *New South Wales Electricity Supply (Safety and Network Management) Regulation 2014* and our Electricity Network Safety Management System (ENSMS) are met.

The estimated capital expenditure associated with this option is \$13.4 million +/- 25 per cent. Routine operating and maintenance costs relating to planned checks by our field crew are estimated at approximately \$10,120 per year (which is the same as under the base case and the other option considered). We calculate that the avoided risk cost by undertaking Option 2 ranges from approximately \$1.2 million per year to \$6.5 million per year in real terms over the assessment period.

Option 2 is found to have positive net benefits under all scenarios investigated and, on a weighted basis, will deliver \$17.4 million in net economic benefits.

The required works for Option 2 would be undertaken between 2022/23 and 2024/25. All works will be completed in accordance with the relevant standards by 2025/26 with minimal modification to the wider transmission assets. Necessary outages of affected line(s) in service will be planned appropriately in order to complete the works with minimal impact on the network.

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.

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 \$46 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 (noting that no issues have been raised).

Parties wishing to raise a dispute notice with the AER may do so prior to 8 September 2023 (30 days after publication of this PACR). Any dispute notices raised during this period will be addressed by the AER within 40 to 120 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. In the subject field, please reference 'Line 23 PACR'.