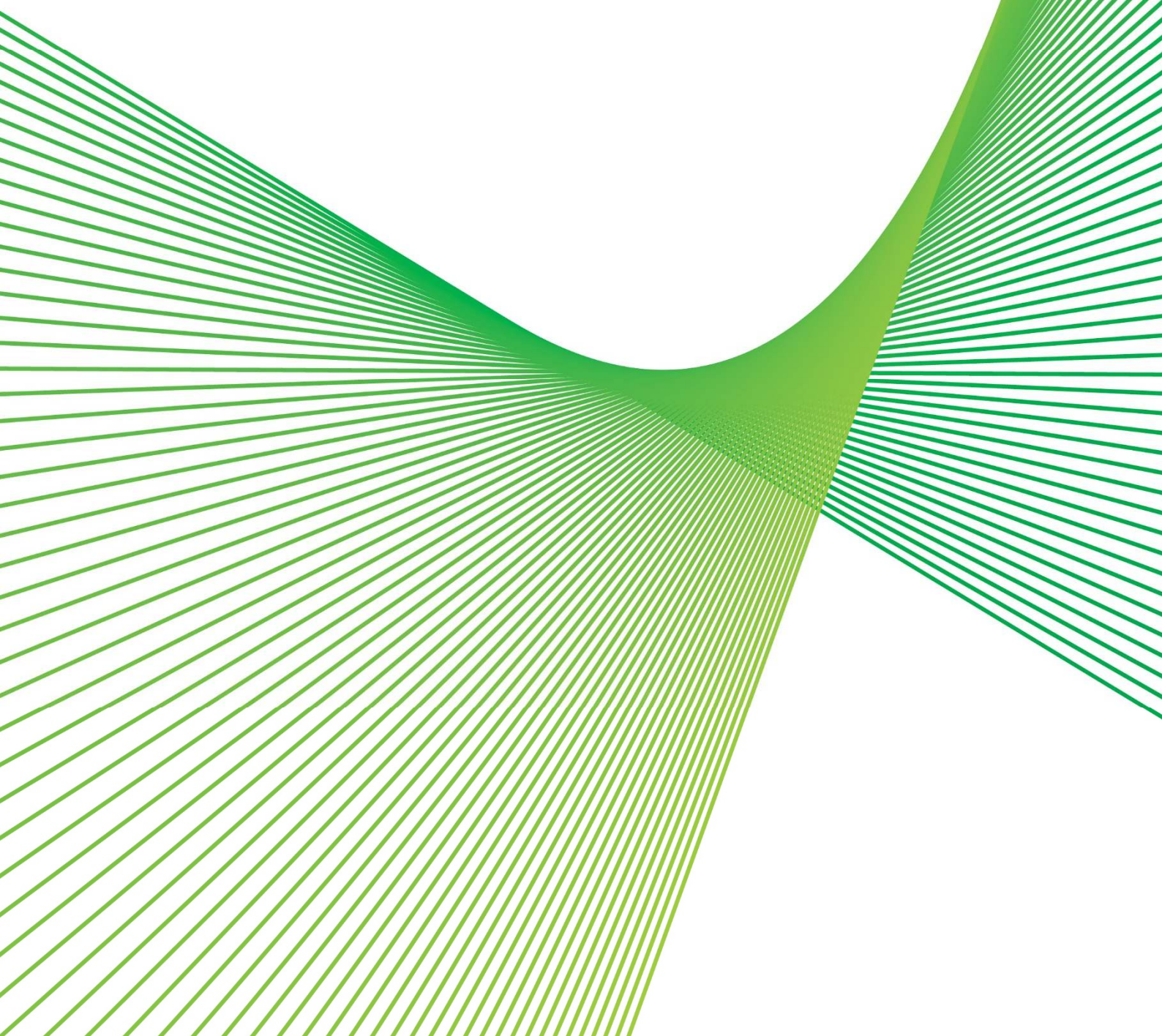


Summary of Managing risk on Line 94U

RIT-T Project Assessment Conclusions Report

Issue date: 20 August 2024



Disclaimer

This suite of documents comprises Transgrid's application of the Regulatory Investment Test for Transmission (RIT-T) which has been prepared and made available solely for information purposes. It is made available on the understanding that Transgrid and/or its employees, agents and consultants are not engaged in rendering professional advice. Nothing in these documents is a recommendation in respect of any possible investment.

The information in these documents reflect the forecasts, proposals and opinions adopted by Transgrid at the time of publication, other than where otherwise specifically stated. Those forecasts, proposals and opinions may change at any time without warning. Anyone considering information provided in these documents, at any date, should independently seek the latest forecasts, proposals and opinions.

These documents include information obtained from the Australian Energy Market Operator (AEMO) and other sources. That information has been adopted in good faith without further enquiry or verification. The information in these documents should be read in the context of the Electricity Statement of Opportunities, the Integrated System Plan published by AEMO and other relevant regulatory consultation documents. It does not purport to contain all of the information that AEMO, a prospective investor, Registered Participant or potential participant in the National Electricity Market (NEM), or any other person may require for making decisions. In preparing these documents it is not possible, nor is it intended, for Transgrid to have regard to the investment objectives, financial situation and particular needs of each person or organisation which reads or uses this document. In all cases, anyone proposing to rely on or use the information in this document should:

1. Independently verify and check the currency, accuracy, completeness, reliability and suitability of that information
2. Independently verify and check the currency, accuracy, completeness, reliability and suitability of reports relied on by Transgrid in preparing these documents
3. Obtain independent and specific advice from appropriate experts or other sources.

Accordingly, Transgrid makes no representations or warranty as to the currency, accuracy, reliability, completeness or suitability for particular purposes of the information in this suite of documents.

Persons reading or utilising this suite of RIT-T-related documents acknowledge and accept that Transgrid and/or its employees, agents and consultants have no liability for any direct, indirect, special, incidental or consequential damage (including liability to any person by reason of negligence or negligent misstatement) for any damage resulting from, arising out of or in connection with, reliance upon statements, opinions, information or matter (expressed or implied) arising out of, contained in or derived from, or for any omissions from the information in this document, except insofar as liability under any New South Wales and Commonwealth statute cannot be excluded.

Privacy notice

Transgrid is bound by the *Privacy Act 1988 (Cth)*. In making submissions in response to this consultation process, Transgrid 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.

Under the National Electricity Law, there are circumstances where Transgrid may be compelled to provide information to the Australian Energy Regulator (AER). Transgrid will advise you should this occur.

Transgrid's Privacy Policy sets out the approach to managing your personal information. In particular, it explains how you may seek to access or correct the personal information held about you, how to make a complaint about a breach of our obligations under the Privacy Act, and how Transgrid will deal with complaints. You can access the Privacy Policy here (<https://www.transgrid.com.au/Pages/Privacy.aspx>).

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 certain components of the 132 kV line running between Parkes 132 kV and Forbes 132 kV substations on the NSW network ('Line 94U'). Publication of this Project Assessment Conclusions Report (PACR) represents the final step in the RIT-T process.

Line 94U was commissioned in 1986 as Line 94K between Wellington and Forbes. It was cut into Parkes substation in 1992. The northern section, Wellington to Parkes retained 94K line number whilst the southern section, Parkes to Forbes was given the new number 94U. When 94H Manildra to Parkes was built in 2011, the 94U Parkes outlet was rebuilt. The first seven (7) structures out of Parkes are now concrete pole. There are 138 structures between those concrete poles and Forbes, nine (9) of which had already been replaced.

Detailed analysis of asset condition information indicates that the line has several condition issues which require refurbishment to address its health and maintain appropriate risk levels across the network. These issues primarily concern the remaining wood pole structures which are approaching an end of life condition. This is despite of the relatively low age, having experienced an accelerated deterioration in asset condition due to use of early vintage Pressure Impregnated (PI) poles on the line.

Given the extent of condition issues across the wood pole structures on Line 94U, it is considered that the entire line is approaching the end of its serviceable life, except for the 9 previously replaced structures. In 2025, the asset will have reached 39 years of age. While this is a relatively low age, the use of early vintage Pressure Impregnated (PI) poles has contributed to an accelerated deterioration in asset condition.

Identified need: managing risks on Line 94U

If action is not taken, the condition of Line 94U is expected to expose us and our customers to increasing levels of risk going forward, as the likelihood of failure increases. There are 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, reliability and financial risks on Line 94U.

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 lines will continue to deteriorate.

We manage and mitigate safety and bushfire risk 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 consistent with 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.

¹ Our ENSMS follows the International Organization for Standardization's ISO31000:2018 Risk Management framework which requires following a hierarchy of hazard mitigation approach.

We note that the risk cost estimating methodology adopted for this RIT-T aligns with that used in our Revised Revenue Proposal for the 2023-28 period. It reflects feedback from the Australian Energy Regulator (AER) on the methodology initially proposed in our original revenue proposal.

No submissions received in response to the Project Specification Consultation Report

We published a Project Specification Consultation Report (PSCR) on 17 May 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.

At the time the PSCR was published, the cost estimate for Option 2 was primarily based on a desktop assessment of the activity required to replace 138 wood pole structures known to be degraded and deteriorated transmission line components. Our latest assessment has shown that 9 of those structures had already been replaced and have since been removed from the scope. At this stage of the RIT-T we expect the capital expenditure to remain within +/- 25% of the estimate presented in the PSCR (approximately \$22.1m in real \$2023-24).

Option 2 remains the preferred option at this stage of the RIT-T.

Credible options considered

In this PACR, we have considered two credible options that would meet the identified need from a technical, commercial, and project delivery perspective.² These options are summarised in the table below.

Table E-1 Summary of credible options

Option	Description	Capital costs (\$m +/- 25%, Real \$2023-24)
Option 1	Replace known wood pole structures exhibiting ground line degradation with steel or concrete pole structures only	6.0 (±25%)
Option 2	Replace all wood pole structures with steel or concrete poles.	22.1 (±25%)

The preferred option is Option 2, as it has the highest weighted NPV result of the technically and commercially feasible options which have been considered at this stage of the RIT-T.

Three other options were considered but not progressed including increased inspections, elimination of all associated risk, and non-network solutions. The reasons these options were not progressed are outlined in Section 3.3 of this PACR.

Non-network options are not able to assist for 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 environmental

² As per clause 5.15.2(a) of the NER.

(bushfire) risk posed as a result of deteriorating wood pole condition. In addition, we did not receive any submissions from proponents of any non-network solutions in response to the PSCR.

The options have been assessed against three reasonable scenarios

The RIT-T is focused on identifying the top ranked credible option in terms of expected net benefits. However, uncertainty exists in terms of estimating future inputs and variables (termed future 'states of the world').

To deal with this uncertainty, the NER requires that costs and market benefits for each credible option are estimated under reasonable scenarios and then weighted based on the likelihood of each scenario to determine a weighted ('expected') net benefit. It is this 'expected' net benefit that is used to rank credible options and identify the preferred option.

The credible options have been assessed under three scenarios as part of this PACR assessment, which differ in terms of the key drivers of the estimated net market benefits (i.e., the estimated risk costs avoided).

Given that wholesale market benefits are not relevant for this RIT-T, the three scenarios implicitly assume the most likely scenario from the 2024 ISP (ie, the 'Step Change' scenario). The scenarios differ by the assumed level of risk costs and unserved energy, given that these are key parameters that may affect the ranking of the credible options. Risk cost assumptions do not form part of AEMO's ISP assumptions, and have been based on Transgrid's analysis, as discussed in Section 2.

We developed the Central Scenario around a static model of demand scenarios, described further in Section A.3 of our [Network Asset Criticality Framework](#). We consider that this approach is appropriate since it materially reduces the computational effort required, and since differences in demand forecasts will not materially affect the ranking of the credible options.

How the NPV results are affected by changes to other variables (including the discount rate and capital costs) has been investigated in the sensitivity analysis. We consider this is consistent with the latest AER guidance for RIT-Ts of this type (i.e., where wholesale market benefits are not expected to be material).^{3,4,5}

A summary of the key variables in each scenario is provided in the table below.

³ AER, *Application Guidelines Regulatory Investment Test for Transmission*, October 2023, pp. 43-44.

⁴ We consider the approach to scenarios and sensitivities to be consistent with the AER guidance provided in November 2022 in the context of the disputes of the North West Slopes and Bathurst, Orange and Parkes RIT-Ts. See: AER, *Decision: North West Slopes and Bathurst, Orange and Parkes Determination on dispute - Application of the regulatory investment test for transmission*, November 2022, pp. 18-20 & 31-32, as well as with the AER's RIT-T Guidelines.

⁵ AEMO '2023 Inputs, Assumptions and Scenarios Report', July 2023, p 123-124

Table E-2 Summary of scenarios

Variable / Scenario	Central	Low risk cost scenario	High risk cost scenario risk
Scenario weighting	1/3	1/3	1/3
Discount rate	7%	7%	7%
Network capital costs	Base estimate	Base estimate	Base estimate
Operating and maintenance costs	Base estimate	Base estimate	Base estimate
Safety, environmental and financial risk benefit	Base estimate	Base estimate – 25%	Base estimate +25%

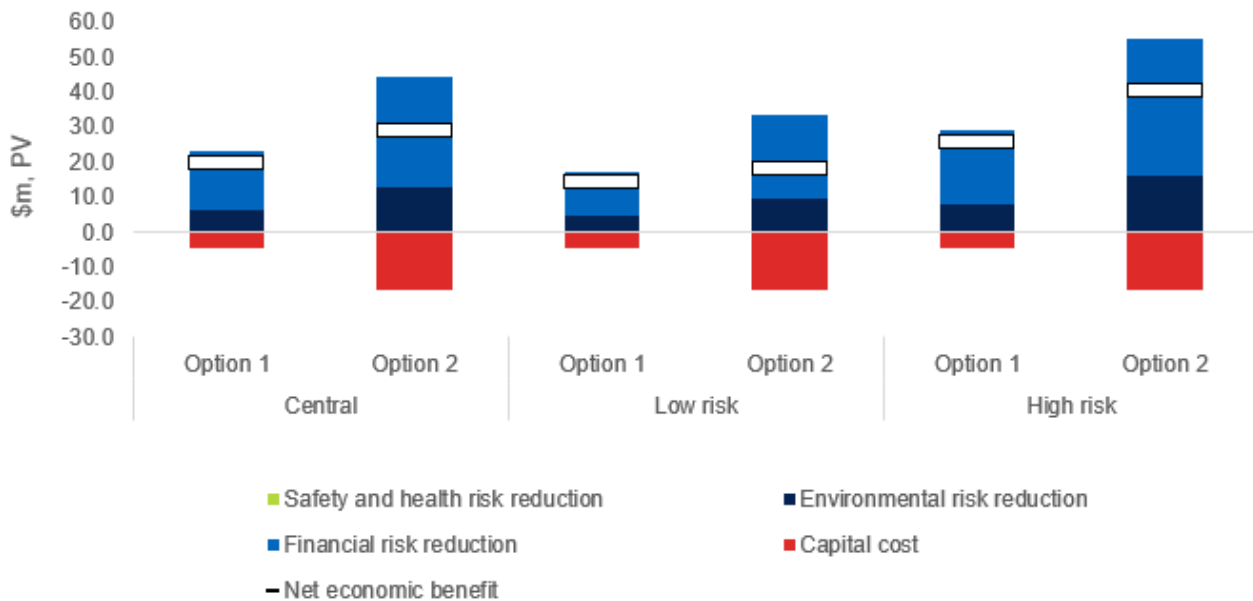
The sensitivity analysis has investigated how the NPV results are affected by changes to other variables, including the discount rate and capital costs.

Option 2 delivers the greatest net economic benefits

Under all scenarios, the costs of mitigating the risks under Option 2 are found to be significantly outweighed by the expected benefit of avoiding the risks. This is also true for Option 1, however to a lesser extent.

The net economic benefits delivered by Option 2 are estimated at \$29.1 million.

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



Conclusion

Option 2 (replacing all wood pole structures with steel or concrete poles) is the preferred option to meet the identified need at this stage of the 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 \$22.1 million. Routine operating and maintenance savings relating to planned checks by our field crew are \$8,050 per year. We calculate that the avoided risk cost by undertaking Option 2 ranges from approximately \$1.4 million per year to \$13.5 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 \$29.1 million in net economic benefits.

The works would be undertaken from 2023/24 to 2025/26. 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.

Next steps

This PACR represents the final step of the consultation process in relation to the application of the 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 the investment meets the criteria for exemption under NER clause 5.16.4(z1), ie:

- the estimated capital cost of the preferred option is less than \$46 million;
- the PSCR included statements on:
 - the proposed preferred option, together with the reasons for the proposed preferred option;
 - that Transgrid expects to be exempt from producing a PADR; and
 - that 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 identified additional credible options that could deliver a material market benefit; and
- the PACR addresses 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 25 September 2024 (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 94U PACR'.