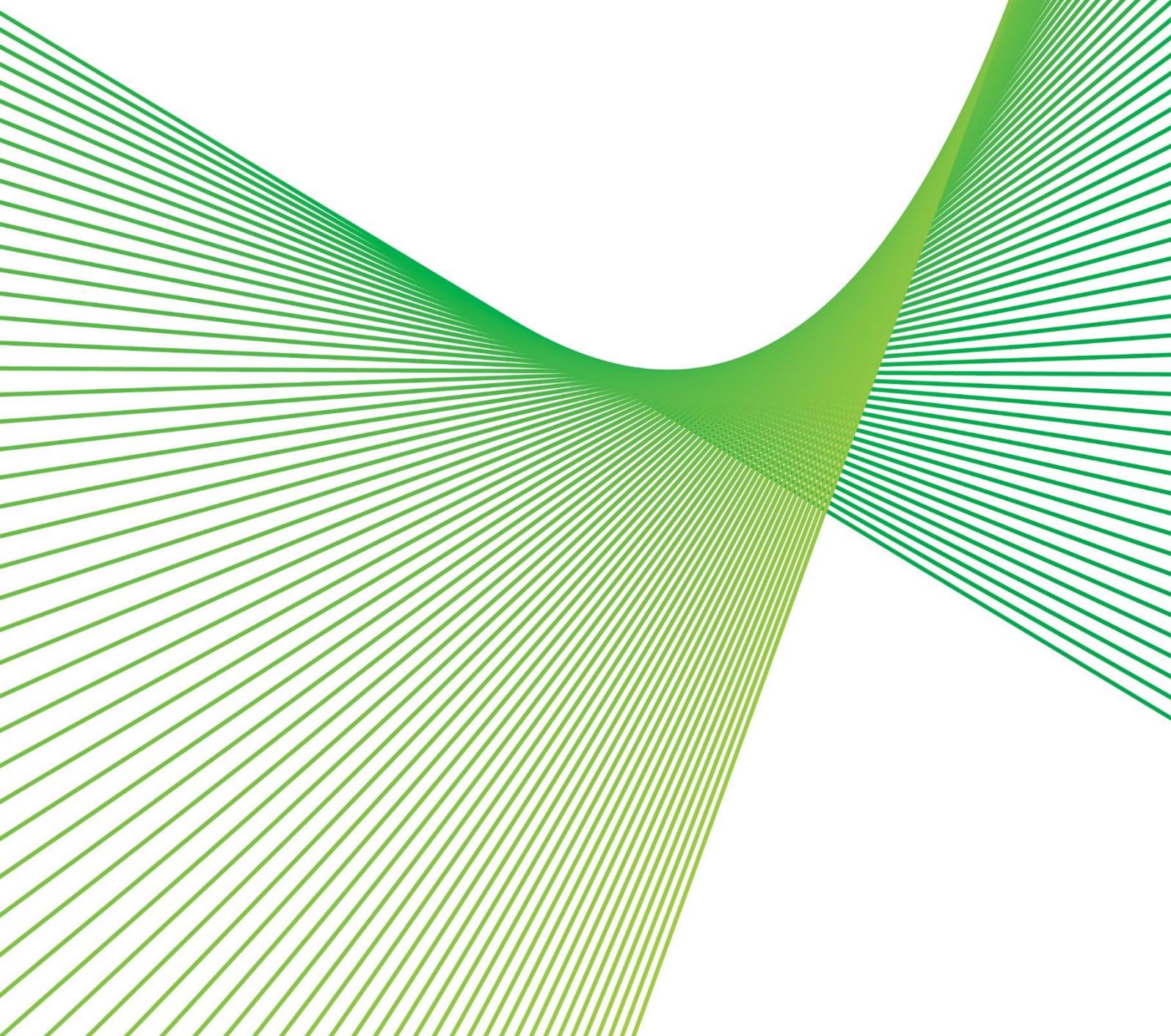


# Summary: Managing risk on Line 966

RIT-T Project Assessment Conclusions Report

Issue date: 1 December 2023



## 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 environmental (bushfire), safety and financial (reactive maintenance) risks caused by the deteriorating condition of certain components of the 132 kV line running between the Armidale and Koolkhan substations in northern NSW ('Line 966'). Publication of this Project Assessment Conclusions Report (PACR) represents the final step in the RIT-T process.

Line 966 is a single-circuit 132 kV line with a route length of 176.5 km that was commissioned in 1961. Line 966 is comprised of 600 structures, 482 of which are wood pole structures.

The line is a key link in the Northern NSW transmission network and its route traverses through grazing land outside Armidale before crossing the Great Dividing Range and passing through the Nymboi-Binderay National Park and finally again through more grazing land south of Grafton. The sections on the outskirts of Armidale are in the highest bushfire consequence category.

Line 966 was impacted by both the Liberation Trail Andersons Creek Fire and the Guya Road Fire in November 2019. The fires burnt out six wood pole structures resulting in conductors on the ground and, in total, the fires impacted 190 structures on Line 966. While the worst affected structures were addressed following the fires, subsequent inspections identified an additional 23 structures as burnt to the extent that the timber is charred (which affects the pole's structural integrity). Only three of those additional 23 structures had been identified as having condition issues in inspections prior to the fires.

Outside of direct fire damage, other identified condition issues on the line impact 390 of the 600 structures across multiple line components, including conductors, porcelain insulators, conductor and earthwire dampers and fittings, and earthwire bonding and structure earthing.

In total, there are currently 94 structures that are considered to be in need of addressing (20 that were impacted by the bushfires and 74 due to general condition issues). The remaining structures identified as being damaged (either by the fires or just generally) are in a more secure state.

Asset deterioration increases the likelihood of structure failures, conductor drop, and subsequent bushfire and safety risks as well as resulting in reactive maintenance costs to repair the failed elements.

### Identified need: managing risks on Line 966

If action is not taken, the condition of Line 966 will expose us and our customers to increasing levels of risk going forward, as deterioration increases the likelihood of failure. There are bushfire and safety 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 environmental, safety and financial risks on Line 966.

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).<sup>1</sup>

---

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

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.

### **Three submissions were received in response to the PSCR**

We published a Project Specification Consultation Report (PSCR) on 16 June 2023 and invited written submissions on the material presented within the document. Three submissions were received in response to the PSCR.

Submissions commented on a range of topics, including how transmission infrastructure is planned in the NEM, NSW government policy regarding renewables, landholder issues and bushfire risks. One submitter offered their strong support for Option 1 in this RIT-T.

We have responded to each submitter directly regarding their submissions as part of preparing this PACR.

### **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.

We note that, since the PSCR was released, there has been a law change to introduce an emissions reduction objective into the national energy objectives<sup>2</sup> and that the National Electricity Rules are currently being updated to add a new category of market benefit to the RIT-T reflecting changes in Australia's greenhouse gas emissions.<sup>3</sup> While we acknowledge this important change to the RIT-T, we note that there is not expected to be a difference in greenhouse gas emission levels between the three options assessed in this PACR since there is no change in the conductor rating included in any of the credible options considered. This new category of market benefit is therefore not expected to be material for this RIT-T and so has not been estimated.

### **Credible options considered**

In this PACR, we have considered three credible options that meet the identified need from a technical, commercial, and project delivery perspective.<sup>4</sup> These are summarised in Table E-1.

<sup>2</sup> On 12 August 2022, Energy Ministers agreed to fast track the introduction of an emissions reduction objective into the national energy objectives, consisting of the National Electricity Objective (NEO), National Gas Objective and National Energy Retail Objective. On 21 September 2023, the *Statutes Amendment (National Energy Laws) (Emissions Reductions Objectives) Act 2023* (the Act) received Royal Assent.

<sup>3</sup> AEMC, *Harmonising the electricity network planning and investment rules and AER guidelines with the updated energy objectives (electricity)*, draft determination, 26 October 2023, p. i.

<sup>4</sup> As per clause 5.15.2(a) of the NER.

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

Option	Description	Capital costs, \$m	Operating costs (per year), \$
Option 1	Replace only wood pole structures that are known to be degraded or bushfire impacted.	14.2	62,000
Option 2	Rebuild bushfire impacted sections of the line (with existing concrete poles to remain where practicable) and replace the existing conductor.	90.0	44,000
Option 3	Rebuild the entire line and replace the existing conductor and earthwire.	98.6	43,000

Each option has a different operating cost since each option leaves a different number of wooden poles remaining on the line that require annual maintenance.

### 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 environmental, safety and financial risks posed as a result of asset deterioration. In addition, we did not receive any submissions from proponents of any non-network solutions in response to the PSCR.

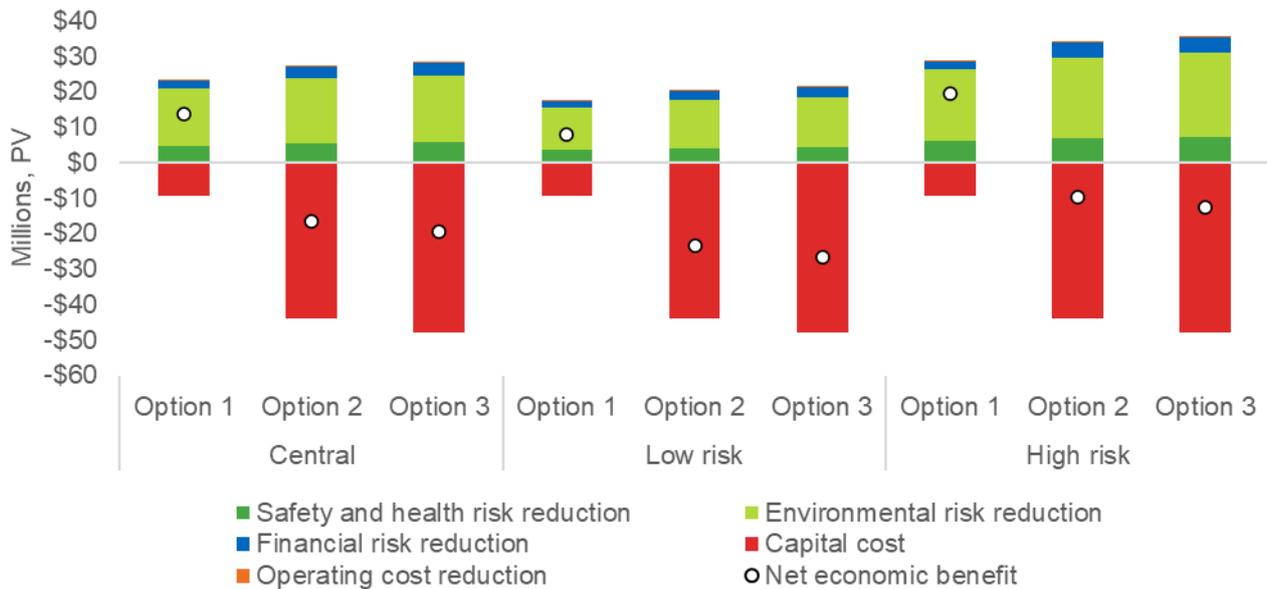
### Conclusion: replacement of only wood pole structures that are known to be degraded or bushfire impacted is optimal

Option 1 is found to have positive benefits for all scenarios investigated, while Options 2 and 3 are found to have negative net benefits for all scenarios investigated. On a weighted basis, Option 1 is found to deliver the greatest net economic benefits at approximately \$13.7 million.

The net benefits of all options have fallen slightly since the PSCR due to a higher commercial discount rate being applied, consistent with the latest AEMO Input Assumptions and Scenarios Report (IASR), which was published in July 2023.<sup>5</sup>

<sup>5</sup> Specifically, while the PSCR applied a central discount rate of 5.50 per cent, consistent with the assumptions adopted in AEMO's 2022 Integrated System Plan, the PACR updates this to 7 per cent in-line with AEMO's latest IASR.

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



Option 1 (replacing only the wood pole structures that are known to be degraded or bushfire impacted) 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 bushfire risk to ALARP. Consequently, it will ensure our obligations under the New South Wales Electricity Supply (Safety and Network Management) Regulation 2014 and our ENSMS are met.

The estimated capital expenditure associated with this option is \$14.2 million (2021/22 dollars). Routine operating and maintenance costs relating to planned checks by our field crew are approximately \$62,000 per year. We calculate that the avoided risk cost by undertaking Option 1 ranges from approximately \$2.1 million per year to \$8.8 million per year in real terms over the assessment period.

Option 1 is found to have positive net benefits under all three scenarios investigated and, on a weighted basis, will deliver \$13.7 million in net economic benefits (in present value terms).

The analysis in this PACR shows that the conclusion is robust to changes in capital cost inputs, estimated risk costs and underlying discount rates. While there would need to be unrealistic changes to these key assumptions to change the ranking of the options, Transgrid will continue to monitor these assumptions and will notify the AER if such changes do occur (or appear likely), which would constitute a material change in circumstance.

The works would be undertaken between 2023/24 and 2024/25. All works would be completed in accordance with the relevant standards by 2024/25 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 2 January 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](mailto:regulatory.consultation@transgrid.com.au). In the subject field, please reference 'Line 966 PACR'.