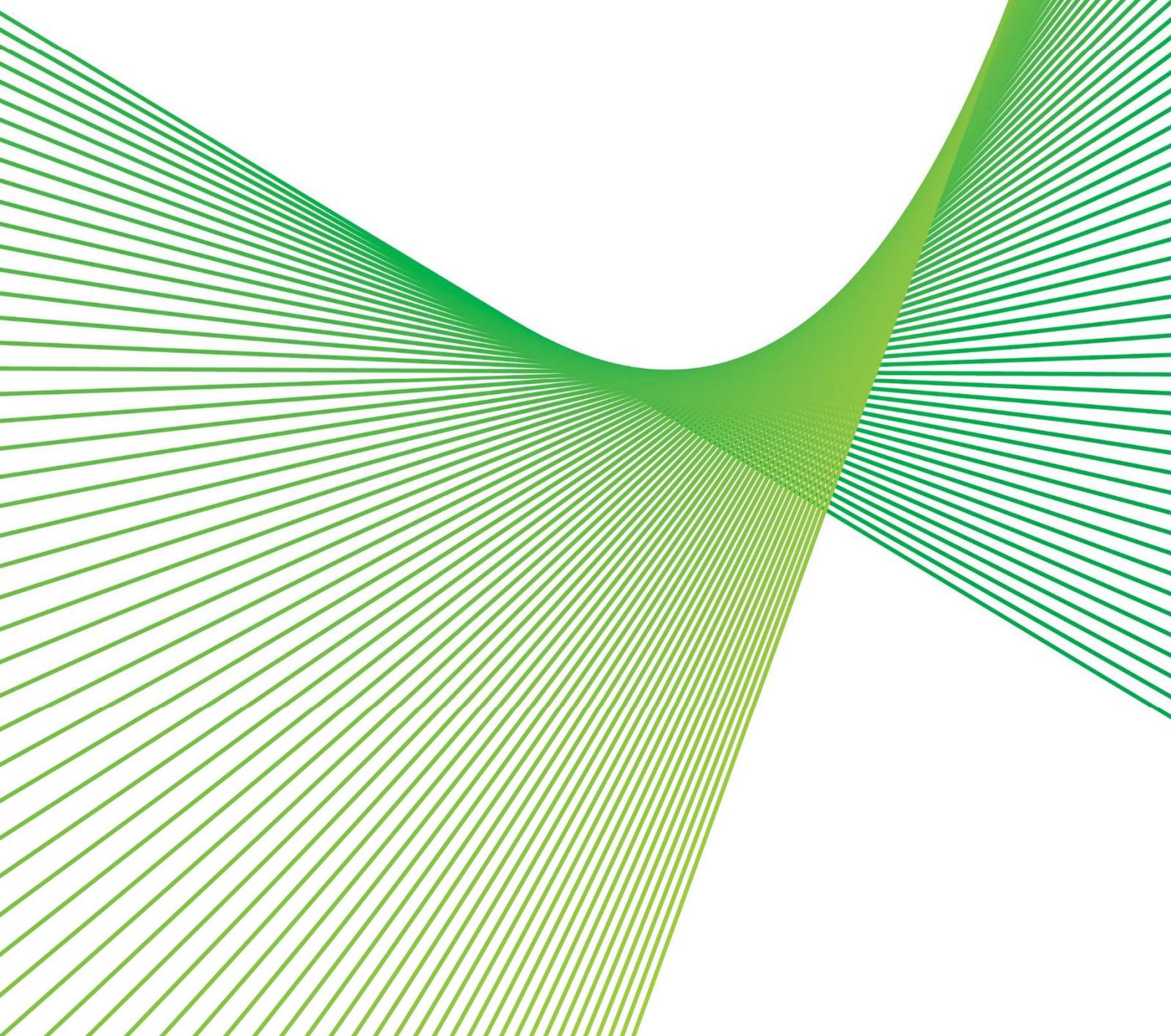


Increasing capacity for generation in the Molong and Parkes area

RIT-T Project Specification Consultation Report

Region: Central West NSW

Date of issue: 29 July 2022



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Summary

We are applying the Regulatory Investment Test for Transmission (RIT-T) to options for improving capacity for renewable generation in the Molong and Parkes area. Publication of this Project Specification Consultation Report (PSCR) represents the first step in the RIT-T process.

The Molong and Parkes area has seen significant growth in renewable generation connections to the transmission network, as part of the wider energy market transition. New renewable generators have connected or are planning to connect to the network west of our Molong 132/66 kV substation. Twelve solar and wind generation farms in the area with a combined output of 1135 MW are already in service, with a further 323 MW of generation committed or in advanced stage.

Line 94T plays a central role in transmitting the electricity from these renewable generators in the Molong and Parkes area to the load in Orange. It connects Molong substation to Orange North switching station, which in turn supplies Orange city, Cadia Mine and surrounding areas.

The existing rating of the 132 kV Line 94T (Molong – Orange North), is constraining renewable generation in the Molong and Parkes area. AEMO’s monthly constraint reports since September 2021 have consistently identified Line 94T as a top 10 constraint on the National Electricity Market (NEM). Network modelling shows thermal overloading of Line 94T is expected under normal system conditions with the current level of in-service and committed generation dispatched to their maximum capacities. Hence, we have identified the opportunity to strengthen the transmission network to relieve this constraint and realise net market benefits by avoiding curtailment of low cost renewable generation in the Molong and Parkes area.

Identified need: provide net benefits to the market by improving capacity for renewable generation in the Molong and Parkes area

The identified need for this RIT-T is to increase overall net market benefits in the NEM through improving capacity and relieving existing constraints on renewable generation in the Molong and Parkes area. This will enable greater output from renewable generation in this region of the NEM.

Within the context of the RIT-T assessment, greater output from renewable generation is expected to deliver market benefits primarily through:

- reductions in total dispatch costs (including fuel costs), by enabling low cost renewable generation to displace higher cost conventional generation elsewhere; and
- reducing the need for new investment in generating plant, or a deferral of generation investment.

We consider this a ‘market benefits’ driven RIT-T as opposed to a ‘reliability corrective action’, and expect the preferred option to have positive net market benefits.

Two credible network options have been identified

We have identified two credible network options that would meet the identified need from a technical, commercial, and project delivery perspective.¹

¹ As per clause 5.15.2(a) of the NER.

These options are summarised in Table E-1 below.

Table E-1: Summary of the credible options

Option	Description	Estimated capital cost (\$m 2021/22)	Expected delivery time	Expected increase in Line 94T system normal rating
Option 1	Increase transmission line design temperature of Line 94T	1.4 (+/- 25%)	2023/24	13 MVA
Option 2	Restrung Line 94T with a higher rated conductor on existing structures	7.5 (+/- 25%)	2024/25	38 MVA

Non-network options may also be able to form credible options for this RIT-T

We consider that non-network solutions may be able to assist with meeting the identified need, either as standalone options or in combination with network options (or components of these options).

At this stage, we consider that possible solutions include but are not limited to:

- bulk or aggregated energy storage systems, e.g.:
 - sealed batteries;
 - flow batteries;
 - concentrated solar thermal with storage;
 - compressed air storage;
 - pumped hydro; and
- voluntary curtailment of customer load.

This PSCR includes the following for the thermal constraint:

- magnitude of MW support required;
- expected cumulative exposure of 94T to overload per annum (hours);
- location; and
- expected time of the day.

We encourage parties to make written submissions regarding the potential of non-network options to satisfy, or contribute to satisfying, the identified need for this RIT-T.

Wholesale market modelling will be adopted for the PADR analysis

The options considered are expected to affect outcomes in the wholesale market, relative to the base case. This additional capacity is expected to provide for more efficient outcomes in the wholesale market, by increasing the output of low cost renewable generation in the Molong and Parkes area.

At this stage, we consider that market benefits from changes in fuel consumption arising through different size and patterns of generation dispatch have the potential to be material for this RIT-T and will be estimated in the wholesale market modelling as part of the PADR.

Submissions and next steps

We welcome written submissions on materials contained in this PSCR. Submissions are particularly sought on the credible options presented and from potential proponents of non-network options that could meet the technical requirements set out in this PSCR. Submissions are due on 26 October 2022.

Submissions should be emailed to Transgrid's Regulation team via regulatory.consultation@transgrid.com.au.² In the subject field, please reference 'Molong and Parkes area 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.

The next formal stage of this RIT-T is the publication of the Project Assessment Draft Report (PADR). The PADR will include the full quantitative analysis of all credible options and is anticipated to be published in late 2022.

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