

# Summary: Maintaining safe and reliable operation of Molong substation

RIT-T Project Specification Consultation Report

Region: Central NSW

Date of issue: 2 April 2024



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## Summary

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We are applying the Regulatory Investment Test for Transmission (RIT-T) to options for maintaining the safe and reliable operation of Molong Substation. Publication of this Project Specification Consultation Report (PSCR) represents the first step in the RIT-T process.

Molong 132/66kV Substation is located in Transgrid's central NSW network. It connects to Transgrid's 132kV Wellington, Manildra and Orange North substations. It also connects the Essential Energy 66kV distribution network and supports renewable generation from Molong Solar Farm.

As a customer connection point supplying Essential Energy in the Molong area, Molong substation supports the flow of electricity to local industries<sup>1</sup> and a residential population of approximately 13,000<sup>2</sup>. Transgrid's Central NSW network is also an area of interest for new renewable generation projects. Molong substation will continue to play a central role in the safe and reliable operation of the power system. New renewable generation with a combined output of 1,135 MW is in service in the region and a further 1,500 MW of renewable generation is committed or anticipated.

The condition of the Molong No.1 132kV transformer has been identified as reaching the end of its technical life leading to an increasing risk of failure which could result in reliability, safety, environment and financial consequences. Replacing the transformer would also require replacing associated switch gear and secondary systems such as switchgear, protection and control systems.

The purpose of this PSCR is to examine and consult on options to address the deterioration of the Molong No.1 transformer at Molong substation to reduce the likelihood of prolonged and involuntary load shedding in the Central NSW region and reduce the risk of safety and environmental hazards associated with a catastrophic failure.

### **Identified need: ensure the safe and reliable operation of Molong substation**

The identified need for this project is to maintain the safe and reliable operation of Molong substation and the broader transmission network in NSW by addressing the risk of failure of Molong substation's No. 1 power transformer.

The natural age of the No. 1 transformer will be 62 years in 2023/24, which is well above the 45-year expected useful life of a power transformer. Condition assessments performed through our routine maintenance program has shown degradation in the condition of the power transformer which will increase its risk of failure. Without intervention, other than ongoing business-as-usual maintenance, the asset is 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.

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<sup>1</sup> Major industries within Carbone include agriculture, mining and tourism and contribute towards the \$849.5 million annual economy and contribute significantly to the regional economy. Carbone Council. "Carbone Local Strategic Planning Statement 2020" 2020.10. Accessed 22 September 2021.  
<https://www.cabonne.nsw.gov.au/files/sharedassets/public/planning-and-development/local-strategic-planning-statement/cabonne-local-strategic-planning-statement-2020.pdf>

<sup>2</sup> The population of the Carbone Local Government Area is 13,386, as per the 2016 Census. Australian Bureau of Statistics, "2016 Census QuickStats", accessed 22 September 2021.  
[https://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/LGA11400?opendocument](https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA11400?opendocument)

We have classified this RIT-T as a 'market benefits' driven RIT-T as the economic assessment is not being progressed specifically to meet a mandated reliability standard but by the net benefits that are expected to be generated for end-customers.

## Two credible network options has been identified

We have identified two credible network options that meets the identified need from a technical, commercial, and project delivery perspective.<sup>3</sup> These options are summarised in the table below. A list of the specific assets with deteriorating condition to be addressed under Option 1 and Option 2 is included in section 3.2 and 3.3, respectively.

Table Error! No text of specified style in document.-1 Summary of the credible options

Option	Description	Capital costs (\$M, 2023/24)	Operating costs (\$M/yr, 2023/24)
Option 1	Replacement of the Molong No.1 transformer	7.08	0.001
Option 2	Refurbishment of the Molong No.1 transformer	1.29	0.002

## Non-network options are not expected to be able to assist with 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. Non-network options will not mitigate the expected lost load, safety risks and environmental risks from failure of the No. 1 transformer.

## Option 1 delivers the highest net economic benefit and will meet NER requirements

We have assessed that Option 1 is the best performing option under all three reasonable scenarios considered in this PSCR. On a weighted basis, where each scenario is weighted equally, Option 1 is expected to deliver net benefits of approximately \$261.22 million.

## Draft Conclusion

This PSCR finds that Option 1 is the preferred option to address the identified need. Option 1 involves replacement of the No.1 Transformer at Molong substation due to the transformer having reached the end of its technical life.

The capital cost of this option is approximately \$7.08 million (in \$2023/24). The work will be undertaken over a single year period with all works expected to be completed by 2025/26. Routine operating and maintenance costs are estimated at approximately \$1,076 per annum (in \$2023/24).

## Exemption from preparing a Project Assessment Draft Report

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.

<sup>3</sup> As per clause 5.15.2(a) of the NER.

Specifically, production of a PADR is not required because:

- the estimated capital cost of the preferred option is less than \$46 million;<sup>4</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>5</sup>

## Submissions and next steps

We welcome written submissions on materials contained in this PSCR.

Submissions are due on 2 July 2024 and should be emailed to our Regulation team via [regulatory.consultation@transgrid.com.au](mailto:regulatory.consultation@transgrid.com.au).<sup>6</sup> In the subject field, please reference 'Molong substation renewal 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.

Should we consider that no additional credible options were identified during the consultation period, we intend to produce a PACR that addresses all submissions received including any issues in relation to the proposed preferred option raised during the consultation period. Subject to additional credible options being identified, we anticipate publication of a PACR by August 2024.

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<sup>4</sup> Varied from \$43m to \$46m based on the [AER Final Determination: Cost threshold review](#), November 2021.

<sup>5</sup> In accordance with NER clause 5.16.4(z2).

<sup>6</sup> 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. 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.