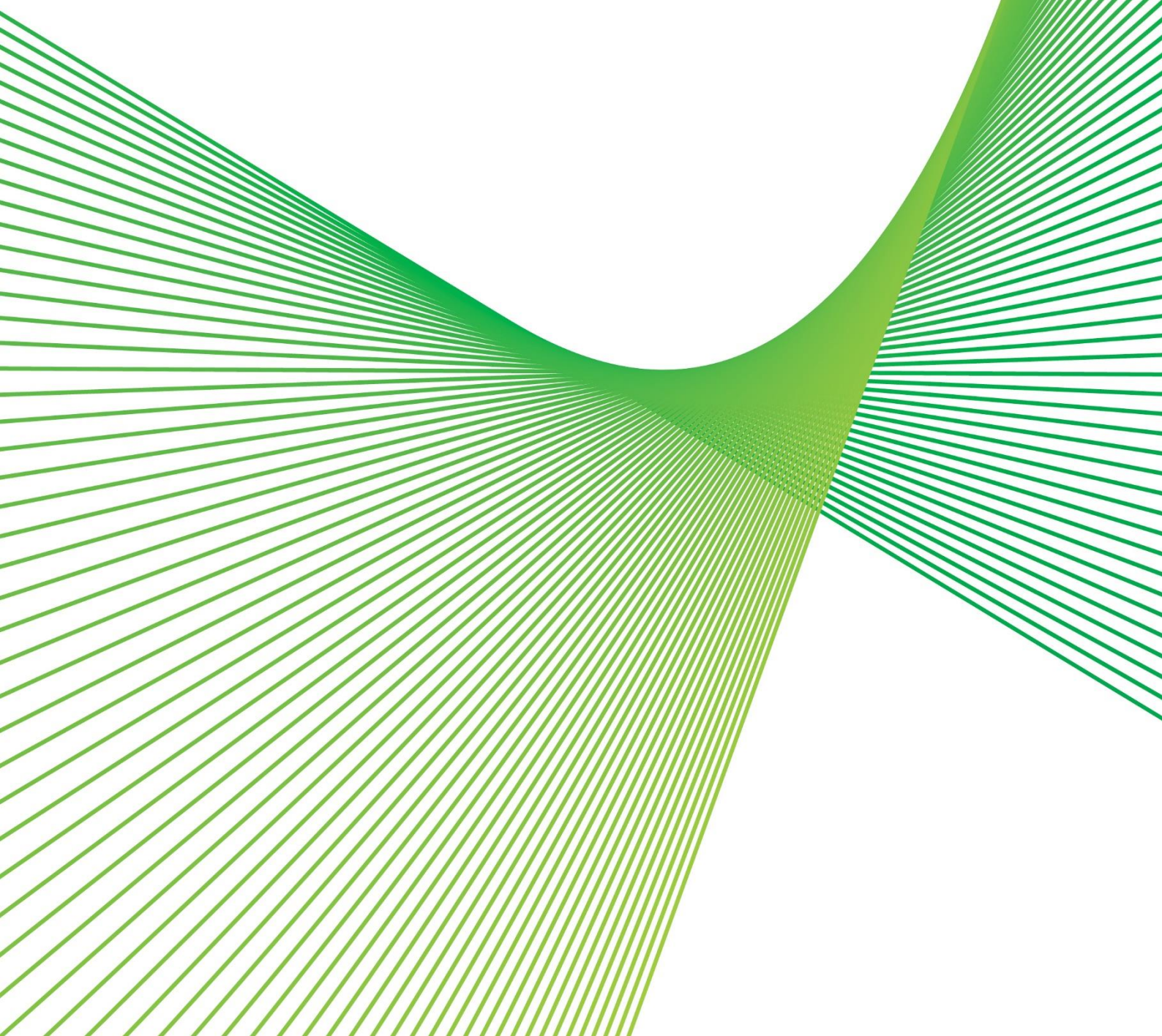


# Summary: Maintaining reliable supply to Western Sydney

RIT-T Project Specification Consultation Report

Region: Greater Sydney

Date of issue: 22 April 2024



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## Summary

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Demand forecasts from Endeavour Energy show rapid demand growth in the Western Sydney and Aerotropolis areas due to the connection of new data centres and ongoing development of commercial and residential lands and associated infrastructure in the area. There is an emerging risk of unserved energy at the Sydney West Bulk Supply Point (BSP) due to increasing summer demand exceeding the firm capacity at the site. This will result in load shedding under single or multiple outages of 330/132 kV transformers at Sydney West BSP to ensure loads are within the ratings of the remaining in-service transformers.

We are applying the Regulatory Investment Test for Transmission (RIT-T) to options that allow Transgrid to meet expected demand and connection point reliability requirements in the Sydney West supply area. Publication of this Project Specification Consultation Report (PSCR) is the first step in the RIT-T process. As investment is needed to meet externally imposed regulatory obligations and service standards, we consider this a reliability correction action RIT-T.

### **Identified need: meeting demand and reliability requirements in the Sydney West area**

The identified need for this RIT-T analysis is to meet demand for electricity and connection point reliability requirements in the Sydney West area.

The latest Endeavour Energy demand forecast for Sydney West BSP shows significant demand growth which is mainly driven by spot load including data centres, metro train lines and large commercial and residential development around the new airport in Western Sydney.

In the absence of network investment, our central maximum demand forecast for the Western Sydney area (Latest POE50 demand forecast) is expected to exceed the firm transformer capacity at Sydney West BSP from 2025/26. The difference between forecast maximum demand and firm transformer capacity at this BSP will increase from 48 MVA in 2025/26 to 791 MVA in 2032/33.

If there is a single or multiple outage of 330/132 kV transformers at the Sydney West BSP, and this contingency event occurs at or near times of high demand, load shedding will be required to maintain load below the firm capacity of the remaining in-service transformers. Based on probabilistic planning studies of transformer failure rates and repair times, we estimate expected unserved energy of 5 MWh in 2025/26, increasing to approximately 2,036 MWh in 2031/32, and 11,307 MWh in 2047.

We have commenced this RIT-T to assess options which will enable us to meet our reliability requirements in the Sydney West area in view of the significant increase in forecast demand. We consider this a 'reliability corrective action' under the RIT-T as the proposed investment is for the purpose of meeting externally imposed regulatory obligations and service standards, i.e., Schedule 5.1.4 of the National Electricity Rules (NER).

### **Two credible network options have been identified**

We have identified two credible network options that meet the identified need from a technical, commercial, and project delivery perspective.<sup>1</sup> These options are summarised in Table E-1 below.

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<sup>1</sup> As per clause 5.15.2(a) of the NER.

Table E-1 Summary of the credible options

Option	Description	Capital costs (\$M, 2022-23)	Operating costs (\$M/yr, 2022-23)	Remarks
Option 1	Install a new 330/132 kV 375 MVA transformer at Sydney West BSP	24.78	0.25	This is our preferred option as it results in the highest net economic benefit
Option 2	Establish a new 330/132 kV BSP at Mt Druitt and convert existing 132 kV line 932 and 219 to 330 kV	80.05	0.80	This option has a higher cost, longer implementation time and will result in a lower net economic benefit.

### Unclear whether non-network solutions will be commercially and technically viable

We consider that non-network options may be able to assist with this RIT-T. Specifically, this will involve potential demand management to reduce the load below the limit of 1500 MVA at Sydney West BSP. This could take the form of a grid-connected battery to provide load reductions.

At this stage, it is not clear whether non-network solutions will be commercially and technically viable. In this PSCR, we have set out the technical characteristics that a non-network option would need to deliver to address the identified need consistent with the NER. We are interested in hearing from proponents on their individual solutions and costs. However, we note that the cost of the network options may act to effectively bound the cost available for any non-network options to be considered commercially feasible.

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.

### Option 1 delivers the highest net economic benefits

In all scenarios considered, Option 1 results in the highest net economic benefits. Option 1 will address the identified need sooner compared to the alternative option, and at a lower cost. Sensitivity testing finds that Option 1 delivers the highest net economic benefits even under changes in key modelling assumptions. This makes Option 1 our preferred option.

### Draft Conclusion

At this stage of the RIT-T process, we consider that implementing Option 1 will meet the identified need, is technically and commercially feasible, and will result in the highest net economic benefit.

Option 1 involves installing a new 375 MVA 330/132 kV transformer at the existing Sydney West BSP. This option will increase the firm transformer capacity at Sydney West BSP by 375 MVA. The capital cost of this option is approximately \$24.78 million  $\pm$  25% (in real \$2022-23). The work will be undertaken over a four-year period with all works expected to be completed by 2026/27. In addition, routine operating and maintenance costs are estimated at approximately \$0.25 million per annum (in real \$2022-23).

All works will be completed in accordance with the relevant standards and components shall be replaced to have minimal modification to the wider transmission network. Necessary outages of relevant assets in service will be planned appropriately in order to complete the works with minimal impact on the network. It is not anticipated that the project will have a significant impact on the environment in accordance with the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act).

## **Exemption from preparing a Project Assessment Draft Report**

Subject to additional credible options being identified during the consultation period, publication of a Project Assessment Draft Report (PADR) is not required for this RIT-T as we consider its investment in relation to the preferred option to be exempt from that part of the process under NER clause 5.16.4(z1). Production of a PADR is not required due to:

- the estimated capital cost of the proposed preferred option being less than \$46 million;<sup>2</sup>
- the PSCR states:
  - 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 option 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;
- the RIT-T proponent considers that there were no PSCR submissions identifying additional credible options that could deliver a material market benefit; and
- the PACR must address any issues raised in relation to the proposed preferred option during the PSCR consultation.

We consider the investment in relation to Option 1 meets these criteria and therefore that we are exempt from producing a PADR under NER clause 5.16.4(z1).

In accordance with NER clause 5.16.4(z1)(4), the exemption from producing a PADR will no longer apply if we consider that an additional credible option that could deliver a material market benefit is identified during the consultation period. Accordingly, if we consider that any additional credible options are identified, we will produce a PADR which includes an NPV assessment of the net market benefit of each additional credible option.

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, and presents our conclusion on the preferred option for this RIT-T.

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<sup>2</sup> Varied from \$43m to \$46m based on the [AER Final Determination: Cost threshold review](#) November 2021.

## Submissions and next steps

We welcome written submissions on materials contained in this PSCR. Submissions are due on 20 July 2024<sup>3</sup> and should be emailed to our Regulation team via [regulatory.consultation@transgrid.com.au](mailto:regulatory.consultation@transgrid.com.au).<sup>4</sup> In the subject field, please reference 'Supply to Sydney West 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. Subject to additional credible options being identified during consultation, we anticipate publication of a PACR in September 2024.

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<sup>3</sup> Consultation period is for 12 weeks, additional days have been added to cover public holidays.

<sup>4</sup> We are bound by the *Privacy Act 1988 (Cth)*. In making submissions in response to this consultation process, we 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.