



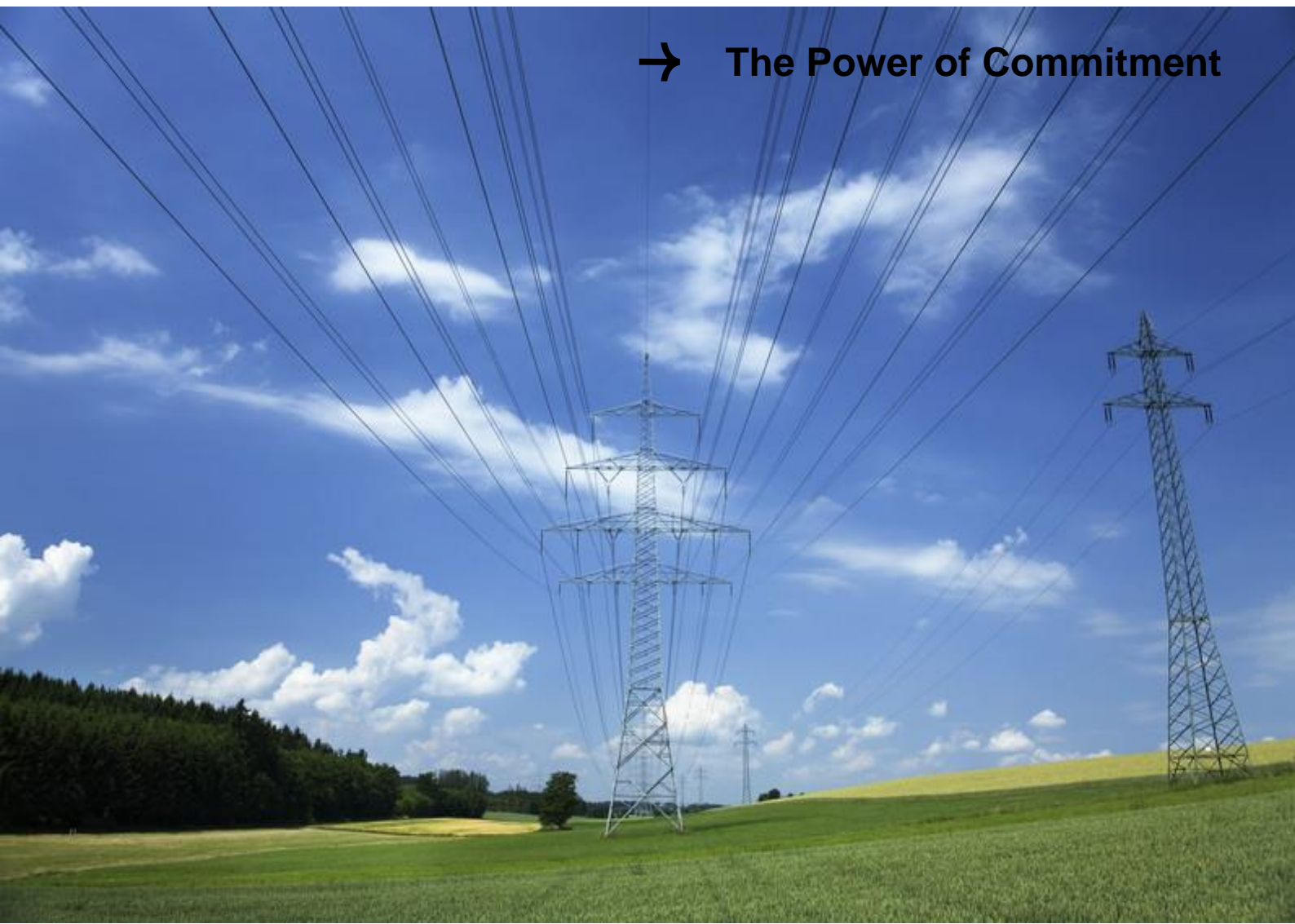
Bathurst, Orange and Parkes Stage 2 – Contingent Project



**Demand Forecast Independent
Verification and Assessment**

Transgrid

17 October 2022

→ **The Power of Commitment**



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Glossary

AER	Australian Energy Regulator
OER	Options Evaluation Report
PACR	Project Assessment Conclusions Report
PADR	Project Assessment Draft Report
RIT-T	Regulatory Investment Test for Transmission

Contents

Glossary	1
1. Introduction	3
1.1 Purpose of this report	3
1.2 Scope and limitations	3
1.3 Assumptions	3
2. Bathurst, Orange and Parkes Stage 2	4
2.1 Regulatory Requirements	4
2.2 AER Draft Determination	4
2.3 Demand Forecast	5
2.3.1 Bathurst, Orange and Parkes Stage 1	5
2.3.2 Bathurst, Orange and Parkes Stage 2	6
2.3.3 AER reasons for rejection of contingent project	6
2.4 Conclusions	7

1. Introduction

Transgrid has included a contingent project “Bathurst, Orange and Parkes Stage 2” within its 2023-28 Revenue Proposal. Given that load data from third parties is confidential, Transgrid has only detailed the consolidated / aggregate demand forecasts.

To further support the assessment of this project, Transgrid has engaged GHD to perform an independent verification and assessment of the projects demand forecasts.

1.1 Purpose of this report

The purpose of this report is to independently review and verify the basis of the load forecasts used by Transgrid in preparing the proposal for a contingent project for areas in their transmission network where future limitations requiring augmentation are may occur following a possible but not certain trigger event as a result of a demand increase which will initiate an application to amend a revenue determination to include a contingent project which will require augmentation to commence within the 2023-28 regulatory control period.

1.2 Scope and limitations

This report has been prepared by GHD for Transgrid and may only be used and relied on by Transgrid for the purpose agreed between GHD and Transgrid.

GHD otherwise disclaims responsibility to any person other than Transgrid arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

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1.3 Assumptions

The following assumptions have been made when writing this report:

- There have been no major changes to the intentions of proponents in relation to spot loads since submissions were made during development of the demand forecast used during the proposal for a contingent project within the 2023-28 Revenue Proposal.

2. Bathurst, Orange and Parkes Stage 2

2.1 Regulatory Requirements

The rules associated with Contingent Projects are set out in Chapter 6A.8 of the National Electricity Rules (NER).

Clause 6A.8.1 defines the rules used by the AER to determine if a proposed contingent project is actually a contingent project.

The regulatory requirements for applications for contingent projects are contained in clause 6A.8.2 of the NER and in the AER's Process Guideline for Contingent Project Application¹.

This report is only examining the rejection of the Bathurst, Orange and Parkes Stage 2 contingent project by the AER as part of the Transgrid 2023-28 revenue determination using reasons set out in clause 6A.8.1 of the NER.

2.2 AER Draft Determination

This report is being performed to review the demand forecast used by Transgrid to justify the possibility of a contingent project application being made during the 2023-28 regulatory control period should the relevant trigger event occur.

In their draft revenue determination for the 2023-28 regulatory control period² the AER rejected the proposed Bathurst, Orange and Parkes Stage 2 contingent project for the following reasons:

“Transgrid expects electricity demand to increase substantially in central west NSW around Bathurst, Orange and Parkes, mainly due to expected expansion of mining load. Transgrid’s proposed trigger relates to one or more of total demand in Orange and Parkes areas to exceed 355 MW and 155 MW, respectively.

Transgrid also noted that it is undertaking a RIT-T for Stage 1 of this project. However, if additional planned loads commit, then there will be further investment to ensure voltage compliance as part of Stage 2.

In response to our information request, Transgrid noted that this project aims to meet the underlying load growth in the Parkes area and that this project would be required by 2027–28 if Transgrid’s high demand scenario eventuates and by 2031–32 under its central scenario.

We consider that Transgrid has not provided sufficient evidence to support the probability of high demand scenario and why this scenario would result in an event which would be probable. Rather this is an outcome that is reflective of multiple independent events where, although unlikely, would be possible of occurring together in the 2023–28 period.

For the three reasons identified in section B.1.4, we are not satisfied that the triggers related to this project are appropriate.

We also note that Stage 1 of this project has been significantly deferred to beyond the 2023–28 period. We therefore do not consider it probable that Stage 2 will be required in the 2023–28 period to the extent that Stage 1 has been partially deferred.”

The three reasons identified in section B.1.4 of the draft determination are:

“

- *the condition or event in the trigger was unlikely to occur during the 2023–28 period, therefore we considered the occurrence of such a trigger as not probable, such that the proposed trigger was not appropriate³*

¹ <https://www.aer.gov.au/system/files/ac06907-Final%20guideline.pdf>

² [AER - Transgrid 2023-28 - Draft Decision - Attachment 5 - Capital expenditure - September 2022.pdf](#)

³ NER, cl 6A.8.1 (c)(5)

- *there was no clear link between the trigger occurring and Transgrid needing to undertake additional capex, such that the proposed trigger was not appropriate⁴*
- *in some cases the trigger did not relate to a specific location but rather a wider area where some assets may or may not require augmentation⁵.*

“

2.3 Demand Forecast

2.3.1 Bathurst, Orange and Parkes Stage 1

Stage 1 of the Maintaining Reliable Supply to the Bathurst, Orange and Parkes areas project has completed its Regulatory Investment Test for Transmission (RIT-T). The preferred option identified in the PACR involves the use of Battery Energy Storage Systems (BESS) at Parkes and Panorama non-network solutions and the installation of STATCOMs at Parkes and Panorama or a synchronous condenser (as a network investment) at Parkes in the near-term. It also involves a new 132 kV line between Wellington and Parkes in the future, with the date of this line depending on what happens with outturn demand forecasts.

The Stage 1 options are sized so that the forecast load growth in the area up to 2030 under the central scenario of the PACR can be managed without violating any voltage constraints.

When conducting the RIT-T for Stage 1, in response to PADR Cadia mine submitted three forecast demand profiles as shown below in Figure 1.

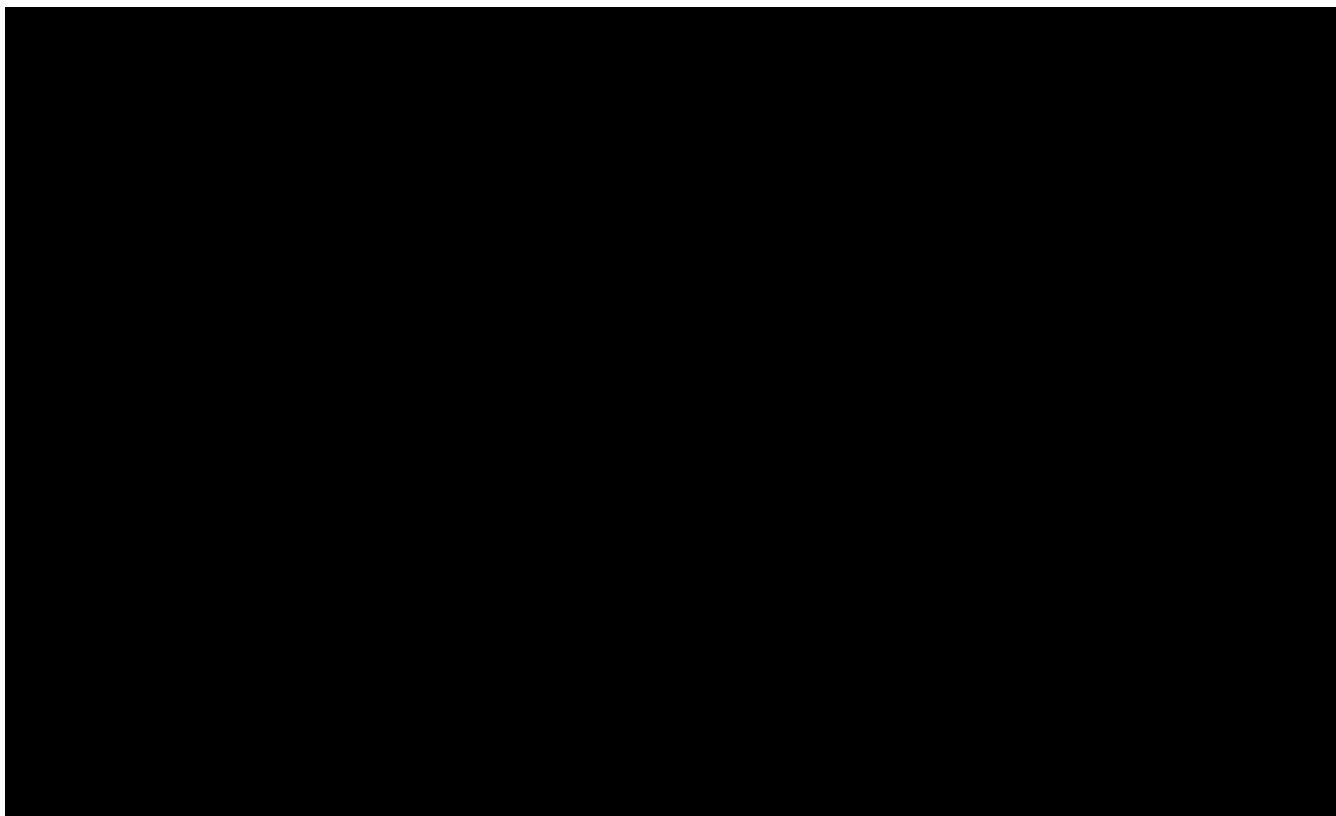


Figure 1 - Cadia Mine: Low, Medium and High forecasts

Transgrid requested Cadia mine to provide additional information on each forecast demand profile considering the anticipated project criteria. Based on this assessment, it was decided to consider only the low demand scenario provided by Cadia mine in the Stage 1 PACR assessments, as the mine developments considered under their medium and high scenarios were not advanced. As a result, only the low demand scenario forecast provided by

⁴ NER, cl 6A.8.1 (c)(2)

⁵ NER, cl 6A.8.1 (c)(3)

Cadia mine was considered in the central and high demand scenarios of PACR assessment conducted by Transgrid.

2.3.2 Bathurst, Orange and Parkes Stage 2

GHD has reviewed the process that Transgrid has used to develop the load forecast for Stage 2 of augmentation in the Bathurst, Orange and Parkes area and the reasons that the AER rejected its inclusion as proposed contingent project in the draft 2023-28 Transgrid revenue determination.

Stage 2 of Bathurst, Orange and Parkes augmentation is not part of the Stage 1 RIT-T. Stage 2 of the project will be triggered by the committed status of loads within the network at a later stage, with a separate RIT-T being performed for the Stage 2 of the project. The RIT-T for Stage 2 will identify the preferred network or non-network option for the project. The present preferred network option is a new 132kV line between Wellington and Parkes.

Stage 2 of the project could be triggered within the 2023-2028 regulatory period, due to the following reasons. The demands under medium and high forecasts provided by Cadia mine are [REDACTED] higher than the low scenario used in the Bathurst, Orange and Parkes Stage 1 RIT-T. The demand growth forecast of Cadia mine showed that if they proceed with their medium or high demand forecast scenarios for development these would be realised within the 2023-28 regulatory period, possibly with a timeframe for ramping up of load from as early as 2025-26 as per Figure 1. Either of these two demand growth scenarios alone would result in the following issues:

- Thermal constraints in the Bathurst, Orange and Parkes transmission network; and
- Voltage constraints in the Bathurst, Orange and Parkes transmission network.

These issues are not completely addressed by the non-network solutions recommended by the RIT-T conducted for Stage 1 and would trigger the RIT-T process for Stage 2 of the project.

Transgrid also considered the latest demand forecasts available from the NSW Government for the Parkes Special Activation Precinct (SAP). The Parkes SAP is one of the most advanced SAP projects in NSW and is presently in the delivery phase. It has been established at the only junction of Australia's two rail spines, the Inland Rail and the Trans-Australian Railway. The National Logistics Hub already exists on the site, and the precinct's location will provide suppliers access to 80 per cent of Australia's population within 12 hours by road or rail, allowing local products to be delivered across Australia and around the world. Additional load growth in the Parkes SAP not considered in the Stage 1 RIT-T for Bathurst, Orange and Parkes could likely be committed within the 2023-28 regulatory control period. Growth in demand at the Parkes SAP that would result in the demand at Parkes exceeding 155MW would trigger the Stage 2 of the Bathurst, Orange and Parkes augmentation project.

2.3.3 AER reasons for rejection of contingent project

GHD notes that in section B.1.4.2 of the AER draft determination the following statement is made:

"We also note that Stage 1 of this project has been significantly deferred to beyond the 2023– 28 period. We therefore do not consider it probable that Stage 2 will be required in the 2023– 28 period to the extent that Stage 1 has been partially deferred."

The recommendation in the PACR for Bathurst, Orange and Parkes Stage 1 is a non-network solution that will provide up to 50 MVAR at Parkes and up to 30 MVAR at Panorama of dynamic reactive support by 2025 to manage voltage variations during high demand periods. Hence, the Stage 1 solution will certainly be implemented during the 2023-28 regulatory control period. The possibility that mining load increases in their medium and high scenarios could ramp up from as early as 2025-26 would require that the contingent Stage 2 project be initiated during the 2023-28 regulatory control period. Alternatively if there is any additional load growth in the Parkes SAP project beyond that considered in the Stage 1 RIT-T then Stage 2 would need to be initiated to ensure that the reliability of supply to customers in the Bathurst, Orange and Parkes area is maintained within required limits.

Other reasons provided by the AER for rejecting the contingent project are examined below.

1. the condition or event in the trigger was unlikely to occur during the 2023–28 period, therefore we considered the occurrence of such a trigger as not probable, such that the proposed trigger was not appropriate

The load forecast provided by the Cadia mine clearly indicates that if they proceed under their medium or high growth scenarios then load will commence ramping up from 2025-26 to levels that would require Stage 2 augmentation to be initiated during the 2023-28 period.

Should the Parkes SAP developments proceed as forecast by the NSW government there is a high probability that the resulting demand increase would require Bathurst, Orange and Parkes Stage 2 to be initiated during the 2023-28 period.

The Cadia Mine and Parkes SAP developments are independent of each other, however only one of these proceeding under their medium or high forecast scenarios would result in the need for Stage 2 augmentation to be initiated.

2. there was no clear link between the trigger occurring and Transgrid needing to undertake additional capex, such that the proposed trigger was not appropriate

The thermal and voltage constraint issues that result from the demand in the Bathurst, Orange and Parkes region increasing to or beyond the trigger levels (i.e. one or more of total demand in Orange and Parkes areas to exceed 355 MW and 155 MW, respectively) are not completely addressed by the non-network solutions recommended by the RIT-T conducted for Stage 1. There are no other augmentation projects proceeding in the Bathurst, Orange and Parkes area that would assist in meeting the level of demand that would exist at the Stage 2 contingent project trigger. Hence, in that scenario, additional capital expenditure would certainly be required to initiate the Stage 2 project during the 2023-28 regulatory control period to ensure that reliability of supply in that network is maintained at an acceptable level.

3. in some cases the trigger did not relate to a specific location but rather a wider area where some assets may or may not require augmentation

GHD notes that NER Clause 6A.8.1 (c)(3) states that the AER must have regard to the need for a trigger event:

“to be a condition or event that generates increased costs or categories of costs that relate to a specific location rather than a condition or event that affects the transmission network as a whole;”

This case does not examine the transmission network as a whole but only specifically the section of the transmission network that supplies the Bathurst, Orange and Parkes region of NSW. This needs to be considered as one complete section because network demand increases at supply points can influence the reliability of supply to customers on each of those specific supply points.

2.4 Conclusions

GHD is satisfied that Transgrid has correctly used load forecasts provided by customers to justify the inclusion of Bathurst, Orange and Parkes Stage 2 as a contingent project in the AER revenue determination for the 2023-28 regulatory control period.

The RIT-T central and high forecast demand scenarios are not sufficiently certain to justify an immediate initiation of the RIT-T process as has been done for the low demand scenario used in the Stage 1 RIT-T for Bathurst, Orange and Parkes. However, the loads provided to Transgrid in customer demand forecasts are certainly probable outcomes of their development plans. If the demand increases do occur as forecast, they are highly likely to result in a trigger event during the 2023-28 period which would require Stage 2 augmentation to be initiated. Stage 2 augmentation would require additional capital expenditure during the 2023-28 period to ensure reliability of supply to customers can be maintained at acceptable levels across the Bathurst, Orange and Parkes transmission.

GHD has reviewed the basis of rejection of the Bathurst, Orange and Parkes Stage 2 contingent project in the draft revenue determination and provided justification why these reasons should be reviewed and revised.

