

26 July 2022

Clare Savage
Chair
Australian Energy Regulator
Level 17, 2 Lonsdale Street
Melbourne VIC 3000

Dear Clare

Notice of Dispute of Transgrid RIT-Ts for Maintaining Reliable Supply to the North West Slopes Area and Maintaining Reliable Supply to the Bathurst, Orange and Parkes Areas

PIAC submits this Notice of Dispute Pursuant to Rule 5.16B of the National Electricity Rules ('NER') and in accordance with the AER's Application Guidelines: Regulatory investment test for transmission ('RIT-T Guidelines') in relation to Transgrid's Project Assessment Conclusions Reports (PACR) for:

1. Maintaining Reliable Supply to the North West Slopes Area ('NWSA PACR'); and
2. Maintaining Reliable Supply to the Bathurst, Orange and Parkes Areas ('BOP PACR').

Details for the grounds for the dispute are set out below.

A copy of this letter will be sent to Transgrid as required by NER 5.16B(c).

Grounds for dispute

Transgrid may have incorrectly applied the RIT-T in both the NWSA PACR and the BOP PACR. The scenarios used to assess the costs and market benefits for each credible option are not reasonable, or have not been reasonably weighted, because the assumptions and inputs relating to:

- network capital costs,
- demand forecasts,
- value of Customer Reliability, and
- discount rates

are incorrect, implausible or outside of what can be assumed with reasonable confidence.

The basis on which PIAC considers this is set out further below.

In each of the NWSA PACR and BOP PACR, the use of these incorrect or implausible assumptions, and the unreasonable weighting of the scenarios, may have materially influenced:

- the timing of the future need for augmentation,

- the relative ranking of preferred options, and/or
- the basis for any investment, compared to 'doing nothing'.

PIAC's asks the AER to:

- review the values and weightings noted herein in the relevant assumptions for the 'central', 'low' and 'high' net economic benefits scenarios used by Transgrid in the PACRs, and
- where relevant, direct Transgrid to amend the PACRs to correctly apply the RIT-T with respect to the scenarios, underlying values and assumptions and to reassess the ranking and timing of options accordingly.

Transgrid's approach to scenarios and assumptions

In both PACRs, Transgrid has assessed credible options under three scenarios: a 'low net economic benefits' scenario; a 'central' scenario; and a 'high net economic benefits' scenario.¹² In the NSW PACR, Transgrid has used the following assumptions in those scenarios:³

Table E-2: Summary of scenarios

Variable	Central	Low net economic benefits	High net economic benefits
Network capital costs	Base estimate	Base estimate + 25%	Base estimate - 25%
Non-network capital costs	Base estimate	Base estimate + 25%	Base estimate - 25%
Demand	Central demand forecast	Low demand forecast	Central demand forecast
New renewable generation in the area	In-service and committed generators from Appendix B.	All in-service, committed and advanced generators from Appendix B.	In-service and committed generators from Appendix B.
Wholesale market benefits estimated	EY estimated based on the step-change 2022 ISP scenario	EY estimated based on the progressive change 2022 ISP scenario	EY estimated based on the hydrogen superpower 2022 ISP scenario
VCR ⁶	\$46.88/kWh	\$32.82/kWh	\$60.95/kWh
Discount rate	5.50%	7.50%	1.96%

In the BOP PACR, Transgrid has used the following assumptions in those scenarios:⁴

¹ NWSA PACR, 11.

² BOP PACR, 10.

³ NWSA PACR, 12.

⁴ BOP PACR, 11.

Table E-2: Summary of scenarios

Variable	Central	Low net economic benefits	High net economic benefits
Network capital costs	Base estimate	Base estimate + 25%	Base estimate - 25%
Non-network capital costs	Base estimate	Base estimate + 25%	Base estimate - 25%
Demand	Central demand forecast	Low demand forecast	Central demand forecast
New renewable generation in the area	In-service and committed generators from Appendix B.	All in-service, committed and advanced generators from Appendix B.	In-service and committed generators from Appendix B.
Wholesale market benefits estimated	EY estimated based on the step-change 2022 ISP scenario	EY estimated based on the progressive change 2022 ISP scenario	EY estimated based on the hydrogen superpower 2022 ISP scenario
VCR ⁶	\$54.54/kWh	\$38.18/kWh	\$70.91/kWh
Discount rate	5.50%	7.50%	1.96%

Network capital costs

The network capital cost assumptions used by Transgrid in both PADRs are disputed.

In both the NSW PACR and BOP PACR, Transgrid has used the following assumptions for network capital costs for the scenarios used for assessing the credible options:

- base estimate for the central scenario,
- base estimate +25% for the low net economic benefits scenario, and
- base estimate -25% for the high net economic benefits scenario.

The revealed cost of transmission projects of this scale in the NEM is consistently above the early estimates used in RIT-Ts. Analysis by AEMO has found on average, a 30% increase between early-stage cost estimates and actual capital costs, with the error for some projects being markedly greater. Analysis completed by GHD for AEMO in 2021 found that unknown risks alone resulted in underestimation of transmission infrastructure projects in early-stage costs estimates by an average of 15%.⁵

Given the evidence that capital costs typically exceed base estimates and noting recent and predicted increases to input costs for energy infrastructure projects in NSW, Transgrid's assumptions used for network capital costs are too low.

PIAC accepts that plausible low economic benefit and high economic benefit scenarios could, as assumed by Transgrid, be:

- Symmetrical, with equal range and weighting above and below a Central value, and
- +/- 25% from a Central value,

if a more plausible estimate is used in the Central value.

⁵ GHD Advisory, ISP Transmission Cost Database Report for AEMO, 7 May 2021, p28.
<https://aemo.com.au/-/media/files/major-publications/isp/2021/transmission-cost-database---ghd-report.pdf?la=en>

In PIAC's view, more plausible network capital cost assumptions would be:

- Central scenario: (Original) Base estimate plus 30%,
- Low benefits scenario: (Updated) Central scenario estimate plus 25%, and
- High benefits scenario: (Updated) Central scenario estimate minus 25%.

As Transgrid has identified similar scenarios for each of the NSW PACR and BOP PACR, PIAC assumes that similar assumptions should apply for each.

In response to the NSW PADR and the BOP PADR, PIAC raised concerns regarding the implausibility of network costs with Transgrid.⁶ Transgrid noted in the PACRs that:

Capital costs for the network options have been revised since the PADR to reflect the change in size of some elements, as well as to reflect current market trends and risks, drawing on the experience of recent projects.⁷

However, Transgrid has not provided detail regarding those estimates for network capital costs or how it has accounted for the underestimation typical of early-stage projects.

On page 5 of the BOP PACR, in relation to the possibility that preferred non-network options are not possible, Transgrid says:

Should either (or both) of these events occur, we would seek an exemption from the AER under clause 5.16.4(z3) of the NER to avoid having to reapply the RIT-T. Specifically, we consider that, should either of the above events occur, then the analysis presented in this PACR demonstrates that Option 3 (i.e., the top ranking solely network option) should then be considered the preferred option under this RIT-T. We consider this approach provides sufficient confidence that Transgrid will be able to progress an option to ensure the externally-imposed regulatory obligations and service standards this RIT-T is designed to meet are met at an efficient cost level without having to re-do the RIT-T.

Transgrid makes a similar statement on page 5 of the NWSA PACR.

Given that Transgrid intends these RIT-Ts to fully support the proposed network-based solutions in the event of non-network solutions not being delivered, it is essential the network capital cost estimates are in a plausible range and appropriate sensitivities are used in this RIT-T.

Demand forecasts

In the NSW PACR, Transgrid identifies expected increased demand arising from substantial new loads including the Vickery Coal Mine extension, Narrabri Coal expansion project, and the proposed Narrabri Gas Project.⁸

In the BOP PACR, Transgrid identifies expected demand growth associated with the expansion of existing large mine loads, the planned connection of new mine/industrial loads

⁶ PIAC submission to Transgrid, 7 April 2022.

⁷ BOP PACR, 10; NWSA PACR, 11.

⁸ NWSA PACR, Appendix B, 70.

and general load growth around Parkes, including from the NSW government's Parkes Special Activation Precinct (SAP).⁹

PIAC's submission to both PADR's noted:

PIAC is, however, concerned about the use of demand forecasts predicated on regional growth plans such as the Parkes and Narrabri Special Activation Precincts. Such plans are largely aspirational and include targets that are rarely met within intended timeframes, if at all.

PIAC's submission to the PADR's recommended:

PIAC recommends any projected demand relating to regional growth plans should be based on an independent assessment that takes into account the actual approved and/or financially committed developments.

In the BOP PACR, Transgrid notes they have discussed these forecasts with the NSW government and made no change to SAP-related demand forecasts.¹⁰ In the BOP PACR, Transgrid states (in response to PIAC's concerns about committed developments):¹¹

In preparing this PACR, we have engaged further with load proponents on the commitment status for key potential loads. Specifically, we have liaised directly with each proponent to determine whether the loads are considered 'committed'/'anticipated' under the RIT-T, i.e., whether they meet the criteria for these classifications under the RIT-T.

PIAC notes the economic and planning uncertainty around the Narrabri gas project and queries whether Transgrid's expected load increases in the region are plausible. The NWSA PACR states that the Central demand forecast 'assumes the full forecast for the Narrabri Gas Project.'¹²

However, as PIAC's submission to the PADR's noted:

The Narrabri Precinct in particular is predicated on the availability of affordable gas for energy intensive businesses; a questionable assumption given the linkage of domestic and international gas prices and lack of a domestic reservation (or equivalent) policy to provide gas price certainty for prospective industries."

In the NWSA PACR, Transgrid states:¹³

In preparing this PACR, we have engaged further with load proponents on the commitment status for key potential loads. Specifically, we have liaised directly with each proponent to determine whether the loads are considered 'committed'/'anticipated' under the RIT-T, i.e., whether they meet the criteria for these classifications under the RIT-T.

Unfortunately, it is not possible to confirm the load and demand forecasts relied upon by Transgrid because the details of those forecasts are treated as commercial in confidence.

⁹ BOP PACR, 5.

¹⁰ BOP PACR, 7.

¹¹ BOP PACR, 30.

¹² NWSA PACR, 25.

¹³ NWSA PACR, 30.

PIAC's submission to the PADRs noted:

PIAC is also concerned about demand forecasts that are treated as commercial in confidence. This is unacceptable practice for an investment where the cost is expected to be recovered from consumers through regulated revenue. Without transparency regarding any future demand relating to the Narrabri Gas Project (noted in the PSCR for the North West Slopes Area) PIAC does not accept the demand forecasts for the North West Slopes area PADR.

In the NWSA PACR, Transgrid states:¹⁴

We understand that there are valid commercial reasons for demand forecasts being kept confidential in RIT-T processes. We note that some of the key loads have made their forecasts public as part of their PADR submission, e.g., Whitehaven Coal's Narrabri Coal Stage 3 Expansion Project. In addition, while not released publicly, the detail regarding all load forecasts has been shared in-confidence with the AER in its role of overseeing the RIT-T and ensuring the efficiency of any ultimately proposed expenditure.

In both the NWSA PACR and BOP PACR, Transgrid states:

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.

Without any apparent independent assessment and/or information regarding confidential loads and their bases, PIAC is concerned there remains a lack of rigour and transparency around the demand forecasts, with the risk they may be materially inaccurate.

Considering the high sensitivity of RIT-T preferred options and timing to demand forecasts, PIAC asks the AER to review the load forecasts relied on by Transgrid.

Value of Customer Reliability

In the NSW PACR, Transgrid has used a VCR of \$46.88/kWh for its Central scenario, \$32.82/kWh for its Low scenario and \$60.95/kWh for its high scenario. PIAC is concerned these values do not appear to align with the AER's published values in its Final Report on VCR values, December 2019, and subsequent annual adjustments.

In the NSW PACR, Transgrid states:

Page 49:

VCR – estimates of the VCR are crucial to determining the value of avoided unserved energy but are subject to uncertainty and so, in addition to using the central VCR estimates (which are based on the AER estimates), we have also reflected VCR estimates in the scenarios that are 30 per cent lower and 30 per cent higher, consistent with the AER's specified +/- 30 per cent confidence interval.³⁹

Page 53:

¹⁴ NWSA PACR, 30.

The avoided EUE for each option has been valued using the estimated VCRs published by the AER.⁴⁴ Specifically, we have developed a load-weighted VCR estimate for the central scenario using the AER VCR values for the customer groups relevant to the region. We have then applied VCR estimates that are 30 per cent lower and 30 per cent higher for the low and high scenarios, respectively, consistent with the AER's specified +/- 30 per cent confidence interval.⁴⁵

In the BOP PACR, Transgrid has used a VCR of \$54.54/kWh for its Central scenario, \$38.18/kWh for its Low scenario and \$70.91/kWh for its high scenario.

In the BOP PACR, Transgrid states:¹⁵

The avoided EUE for each option has been valued using the estimated VCRs published by the AER.⁴⁷ Specifically, we have developed a load-weighted VCR estimate for the central scenario using the AER VCR values for the customer groups relevant to the region. We have then applied VCR estimates that are 30 per cent lower and 30 per cent higher for the low and high scenarios, respectively, consistent with the AER's specified +/- 30 per cent confidence interval.⁴⁸

While Transgrid has stated the VCRs used align with the AER's values, these are load-weighted estimates which it is difficult for stakeholders to assess without visibility of the load forecasts that feeds into those estimates. At face value, the VCRs used by Transgrid in both PACRs in the Central economic benefits scenario appears to be above the AER's VCR values.

The AER's VCR estimates have been determined through a rigorous process and are an accepted estimate from an independent, expert source. In PIAC's view, they effectively include the full range of VCRs for different consumers and types of consumers. The RIT-T Guidelines state that the application of the VCR to the RIT-T is one of the core applications of the VCR, and that, referring to the AER's published VCR estimates:

...any deviation from or adjustment of our published VCR values (for example, to reflect a specific mix of customers or HILP event that is already captured in our VCR estimates) must be clearly justified, setting out why it would not be appropriate to apply, or why it would be appropriate to make adjustments to, our published values.¹⁶

PIAC raised the matter of inappropriate VCRs in response to those proposed in both PADR's, noting the values appeared materially higher than those developed by the AER. Transgrid's PACRs note the load-weighted VCR estimates but do not provide supporting evidence for how those VCRs have been estimated. PIAC's concerns regarding the load forecasts adopted in each of the PACRs as outlined above contribute to the difficulty in assessing these VCR estimates.

Accordingly, PIAC asks the AER to:

- Review the load forecasts relied on by Transgrid to determine if they support the VCR estimates Transgrid has adopted.
- Advise if Transgrid's application of AER's +/- 30% confidence in relation to the VCR is appropriate and consistent with AER's intended use.

¹⁵ BOP PACR, 53.

¹⁶ RIT-T Guidelines, 29.

Discount rates

In the NWSA PACR, Transgrid states:¹⁷

A real, pre-tax discount rate of 5.50 per cent has been adopted as the central assumption for the NPV analysis presented in this PACR, consistent with the assumptions adopted in 2021 Inputs, Assumptions and Scenarios (IASR). The RIT-T also requires that sensitivity testing be conducted on the discount rate and that the regulated weighted average cost of capital (WACC) be used as the lower bound. We have therefore tested the sensitivity of the results to a lower bound discount rate of 1.96 per cent,⁴⁸ and an upper bound discount rate of 7.50 per cent (i.e., the upper bound proposed for the 2022 ISP⁴⁹).

In the BOP PACR, Transgrid states:¹⁸

A real, pre-tax discount rate of 5.50 per cent has been adopted as the central assumption for the NPV analysis presented in this PACR, consistent with the assumptions adopted in 2021 Inputs, Assumptions and Scenarios (IASR). The RIT-T also requires that sensitivity testing be conducted on the discount rate and that the regulated weighted average cost of capital (WACC) be used as the lower bound. We have therefore tested the sensitivity of the results to a lower bound discount rate of 1.96 per cent,⁵¹ and an upper bound discount rate of 7.50 per cent (i.e., the upper bound proposed for the 2022 ISP⁵²).

PIAC is concerned that the discount rate used by Transgrid in both PACRs for the High economic benefits scenarios is implausibly low for the weighting of 18% given to those scenarios, as the AusNet WACC in question represents a historically low WACC that is implausibly low for likely future economic and financial market conditions.

PIAC requests the AER assess if Transgrid's proposed combination of discount rate and weighting is appropriate for the High benefits scenarios.

Weighting of scenarios

Given the concerns with the assumptions used by Transgrid outlined above, PIAC is concerned that the analysis performed by Transgrid in the PACRs is incorrect or implausible.

In PIAC's submission to both the NWSA PADR and BOP PADR, PIAC noted:

Finally, PIAC rejects inclusion of the High Net Economic Benefits scenarios in the weightings for both PADR. These are predicated on three implausible assumptions:

- Network costs 25-30% lower than the Central scenario
- Values of Customer Reliability materially (and inexplicably) higher than those developed by the AER
- Discount rates of 2.23%

PIAC notes the High benefits scenario in both PACRs includes a discount rate of 1.96%.

PIAC suggested a more realistic approach would be to apply 50% weighting to each of the Central and Low net economic benefits scenarios for both PADR.

¹⁷ NWSA PACR, 54.

¹⁸ BOP PACR, 55.

In response to PIAC's submission, Transgrid stated in both PACRs:

PIAC expressed a view that the high benefits scenario should not be included in the analysis due to unrealistic assumptions.³¹ PIAC recommended a 'more realistic' approach of applying 50 per cent weighting to each of the central and low net economic benefits scenarios (and removing the high scenario).³²

We note that the purpose of using a high benefits (and low benefits) scenario is to test the rankings of options against an extreme bound of plausible economic benefits.

PIAC agrees with this purpose of the high and low benefits scenarios, however Transgrid's weightings of 18% and 30% respectively do not reflect 'extreme bounds'. Extreme bounds would be reasonably expected to have a POEs of $>.95$ or $<.05$, with commensurate scenario weightings of up to 10%.

Transgrid further states:

Specifically, the three scenarios assessed in this PACR reflect combinations of assumptions that are expected to affect the ranking of the credible options, including the expected wholesale market benefits, in order to comprehensively test the range of net benefits that can be expected from the credible options.

PIAC agrees with the intention to comprehensively test the range of net benefits that can be expected, however Transgrid's low estimates of capital cost for network solutions across all scenarios fail to achieve that objective.

Transgrid further states:

We consider that this approach allows for a more robust test of the preferred option compared with adopting individual sensitivity tests, since multiple variables are changed at once.

The assertion this approach is 'more robust' is questionable given the implausibility of all the values of either the Low or High benefits scenarios occurring coincidentally.

Transgrid further states:

This approach to constructing scenarios has been adopted across a range of RIT-Ts where wholesale market benefits are expected to form a lower proportion of the overall estimated net benefit. We note that the high benefits and low benefits scenarios are largely symmetric in terms of the assumptions drawn upon and we consider that removing one (as PIAC have suggested) would bias the analysis.

PIAC notes our initial recommendation to remove the High benefits scenario was to remove the inherent bias of Transgrid's own approach.

While Transgrid considers the High net benefits scenario an extreme bound of plausible economic benefits, PIAC disputes that:

- the assumptions in the scenario are plausible in aggregate,
- the network capital costs are plausible in any case, and

- the discount rates are plausible in circumstances where the High benefits scenario is given a weighting of 18%.

Please feel free to contact me directly to discuss any matters relating to this dispute.

Yours sincerely,

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