13 August 2025

Clare Savage
Chair
Australian Energy Regulator
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THE CENTRE FOR INDEPENDENT STUDIES

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Notice provided to regulatory.consultation@transgrid.com.au.

Dear Ms Savage,

Notice of Dispute of Transgrid's RIT-T for Meeting system strength requirements in NSW

The Centre for Independent Studies submits this Dispute Notice pursuant to Rule 5.16B of the National Electricity Rules (NER) in relation to Transgrid's Project Assessment Conclusions Report (PACR) for Meeting System Strength Requirements in NSW, published on 19 July 2025.

The grounds for the dispute are under 5.16B(a)(1) — the application of the regulatory investment test for transmission.

We contend that the RIT-T process has not complied with 5.15.2 in the identification of a credible option. In particular, regarding 5.15.2(a), the identified credible options:

1. Do not adequately address the identified need;
2. Are not commercially and technically feasible, in that they rely on future developments that are currently not yet proven to be technically or commercially feasible, but are hoped to become so in the future; and
3. Cannot be implemented in sufficient time to meet the identified need, instead leaving unresolved shortfalls in system security.

Further, we contend that the requirement of 5.15.2(a) is un-met because the 'options' provided do not comprise an option, or group of options, in the usual sense of the word, both in terms of simple English, and what would be reasonably expected from the regulatory framework. In particular, with regard to the procurement of grid-forming BESS (which is substantively half of every option) the options present a loosely bounded, continuous possibility space within which possible future solutions might lie. It appears from the PACR that:

- Between 0 and 5GW grid-forming batteries might be required (depending on self-remediation);
- Between 1% and 100% of the batteries' capital cost will be supported;
- Between 0 and 100% of the batteries will be network-owned, or conversely privately owned;
- Between 1 and 10 year terms for security services might be offered for private batteries;

- An unknown mix of brands and technical solutions might be selected, some of which are more than double the effectiveness of others at providing system strength, with unknown cost trade-offs; and
- The locations, and timings are all completely unresolved (or redacted).

As explicitly stated in the official webinar, Transgrid is "currently developing [their] procurement strategy for non-network solutions in grid forming batteries"[1]. As such, the PACR as currently stated does not comprise a selection of an option that meets the need in a timely fashion, but rather a request for a funding envelope to continue 'figuring it out as we go along', with the only certainty being that there is no way to adequately meet the need in a timely fashion from any available of known technologies.

There is no way in which this can be regarded as being in consumers' best interests. This PACR is committing to a broad continuum of possible pathways, all of which are known to fail to some degree, some of which may fail more catastrophically than others.

We would further object that 5.15.2(b) has not been satisfied, in that there is an obvious credible option which should be considered, which has not been. This comprises:

- Acknowledging that the extension of coal generation is essential to ensuring adequate system security throughout the projected period, and hence modelling this to be extended to at least the minimum degree that is consistent with a low risk of any shortfall in security, or energy generation given what is technically and commercially feasible for the expansion of new renewable energy sources;
- Utilising only technologies that are known now to be technically feasible, and can be readily and confidently assessed and quantified to meet the required need (i.e. synchronous condensers), rather than unproven technologies; and
- Considering complete network ownership of these assets.

Given the uncertainty around the costs and risks of a solution that is not yet proven to work at the scale required in the real world, it does not seem that the exclusion of any option along these lines is consistent with the requirements of the RIT-T.

We acknowledge that there has been considerable work done using modelling efforts, cross-validated with other modelling efforts, to suggest that there is likely to be a commercially and technically viable solution involving grid-forming batteries in the future. However, the regulatory process is not a venture capital fund or early stage private equity, designed to expend risk-capital on proving up technologies which are showing potential. This PACR effectively promotes Transgrid to become such an entity.

Rather, the regulatory process must make the necessary and sufficient investments, of billions of dollars, that deliver reliable and low-cost electricity to consumers. These investments must keep the lights on. Opening the way for billions of dollars of expenditure to be backed at consumers' expense on

a vague and open-ended pathway that does not fully and reliably resolve the security requirement is unacceptable.

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

Yours sincerely,

Aidan Morrison
Director
Centre for Independent Studies Energy Program

1 The PACR's preferred option does not resolve the identified need

1.1 Persistent shortfalls since the PADR

Transgrid's Project Assessment Draft Report (PADR), published in June 2024, assessed four portfolio options intended to address declared system strength shortfalls at key NSW nodes — Newcastle, Sydney West, Armidale, Wellington and Darlington Point — from July 2025, and to meet the forward-looking obligations in clause 5.1.14 of the National Electricity Rules (NER).

Transgrid acknowledged in the PADR that even under what was then considered the most credible option (Portfolio Option 1), significant unresolved system strength gaps would persist into the 2027/28 period, particularly during conditions of minimal synchronous generation coinciding with planned transmission outages.[2] The modelling showed gaps occurring up to 3% of the year.

Other modelled portfolios explored options such as bringing forward the commissioning of synchronous condensers or incorporating alternative non-network proposals, and these approaches would have closed the 2027/28 gap. They were not selected at the PADR stage, with Transgrid citing feasibility and timing uncertainties as the reasons for not treating them as "credible" at that time.

Transgrid concludes:

> While portfolio option 1 is currently the most credible option, Transgrid will work to identify other portfolio options (and, in particular, portfolio options 2 and 3, independently or together), which close the system strength gap in 2027/28 and deliver greater overall net market benefits to consumers.[3]

This was an admission that the identified need would not be met in full and that further work was required to find viable alternatives or enhancements.

1.2 All PACR portfolios still have material system strength gaps

The Project Assessment Conclusions Report (PACR), released in July 2025, modelled five portfolio options:

- Options 1-3 use the "credible" commissioning timeframe for synchronous condensers (first available March 2029–February 2030).
- Options 4-5 accelerated the build schedules, with some or all synchronous condensers commissioned by May 2028.

In the PACR, Option 1 (Basic Portfolio) delivers a slightly higher net market benefit than Option 2 (Enhanced Portfolio), by 0.28 per cent. Transgrid nevertheless selected Option 2 as the preferred option on the basis that bringing forward one synchronous condenser from 2031/32 to 2029/30 would, in its view, provide "added robustness" in meeting system strength requirements — even though its modelling shows this change does not eliminate, or even materially reduce, the significant forecast shortfalls after Eraring's expected closure.

Transgrid's own modelling shows that, under this option:

- The minimum level of system strength would not be met for up to 2% of time statewide in 2027/28;
- Shortfalls of up to 1.5% statewide in 2028/29; and
- The Armidale node could be below the standard for up to 10% of the year in 2028/29.[4]

These outcomes are no better statewide than the PADR's "most credible" case and, at Armidale, represent a more severe and prolonged breach.

In fact, all five portfolios modelled in the PACR — including the accelerated-build scenarios — retain significant risks of system strength gaps during the assessed period (Figure 1).

Table 3. Years where the risk of system strength gaps occur for portfolio options 1 - 5

	Portfolio option 1	Portfolio option 2	Portfolio option 3	Portfolio option 4	Portfolio option 5
2025/26	No gaps	No gaps	No gaps	No gaps	No gaps
2026/27	No gaps	No gaps	No gaps	No gaps	No gaps
2027/28	Risk of gaps	Risk of gaps	Risk of gaps	Risk of gaps	Risk of gaps
2028/29	Risk of gaps	Risk of gaps	Risk of gaps	No gaps	No gaps
2029/30	No gaps	No gaps	Risk of gaps	No gaps	No gaps
2030/31	No gaps	No gaps	No gaps	No gaps	No gaps
2031/32	No gaps	No gaps	No gaps	No gaps	No gaps
2032/33	No gaps	No gaps	No gaps	No gaps	No gaps

Figure 1. Table 3 from the PACR (p. 8)

The absence of any modelled network or non-network solution that avoids these forecast gaps means the PACR fails to identify a single option that is, in terms of AER's RIT-T guidelines under section 3.2.1, "highly likely" to meet the minimum level of system strength specified by AEMO under NER 5.1.14(b). As such, the RIT-T is not compliant. It has failed to address the identified need, as required by NER 5.15.2(a).

1.3 Transgrid's PACR falls short of other system strength RIT-Ts and AEMO standards

The level of forecast shortfall in Transgrid's preferred option is out of step with the approach adopted in other recent system strength RIT-Ts, and with AEMO's own planning benchmarks.

1.3.1 AEMO's planning benchmark for system strength

AEMO's *NSCAS Description and Quantity Procedure* applies a three-sigma (99.87th percentile) threshold when determining whether there is a system strength gap.[5] This means the minimum three-phase fault level — pursuant to NER S5.1.14(b) — should be met for at least 99.87 % of the year, allowing no more than about 10 hours annually where the standard is not met. The tight threshold reflects that the minimum level of system strength is a fundamental security requirement.

In comparison, Transgrid's PACR preferred portfolio accepts up to 2% of the year (~175 hours) statewide below the minimum and up to 10% (~876 hours) at the Armidale node. From AEMO's

perspective, these shortfalls would constitute a significant system strength gap requiring remediation; not a level to be tolerated.

1.3.2 Recent system strength RIT-Ts in other states

Other TNSPs have recently completed system strength RIT-Ts without accepting the same level of shortfalls as Transgrid:

- Powerlink's *Addressing System Strength Requirements in Queensland* PACR published in June 2025 noted the increased in AEMO's minimum system strength requirements and assessed the preferred option in the PACR "against the higher threshold, and confirmed that it did not make a material difference to the preferred option."[6] Additionally, Powerlink states that all of the portfolios in the PACR "met both the minimum and efficient system strength requirements".[7]
- TasNetworks framed the identified need explicitly against NER 5.1.14 and AEMO's minimum and efficient levels, and identified a single credible non-network option on the basis that it could deliver "the required volume of system strength services in time" to meet those requirements.[8] The PACR contains no disclosure of any forecast breaches or tolerance for partial compliance, and no qualification is attached to its statement that the preferred option meets the standard.
- AEMO Victorian Planning's PACR for the *Victorian System Strength Requirement* RIT-T states the minimum fault-level "has to be met at all times of the year" and developed option portfolios by screening for and filling any forecast gaps against that criterion.[9] For the preferred option, AEMO describes its components as "meeting both the minimum and efficient system strength requirements" and presents no tolerance for planned shortfall.[10]

It is important to note that in the *Victorian System Strength Requirement* PACR, AEMO has set out a clear interpretation of the system strength requirement in the NER. In response to a stakeholder comment for clarification on the meaning of "at any time in a relevant year" and "reasonable endeavours" under NER 5.1.14, AEMO states in the Victorian PACR:

> AVP [AEMO Victorian Planning] understands that the need is to meet the requirements 100% of the time (using reasonable endeavours).
>
> AVP's interpretation is that reasonable endeavours means planning to be able to cover requirements 100% of time, but acknowledging that planning timeframes and real-time operational events can result in different outcomes. As such, AVP has developed option portfolios that, for the minimum level, are capable of landing secure following a planned outage and any credible contingency or protected event, and, for the efficient level, that are capable of landing secure following any credible contingency or protected event (that is, for the efficient level AVP assumes it is acceptable to constrain off IBR for planned outages to ensure the system remains stable after any credible contingency or protected event).[11]

Thus, AEMO interprets NER 5.1.14 as requiring portfolios to be planned for year-round compliance with the minimum and efficient levels of system strength. "Reasonable endeavours" recognises that real-time events may occasionally cause unavoidable deviations, but it should not be interpreted as a licence to design portfolios that knowingly fall short for any portions of the year. The planning objective remains to be full coverage.

This is precisely the standard reflected in the recent system strength RIT-Ts in other states. Powerlink, TasNetworks and AEMO/AVP have each planned their preferred portfolios to meet the minimum level across the year, with no forecast shortfalls of any material magnitude.

By contrast, Transgrid's PACR acknowledges in its preferred option that the minimum level of system strength will not be met for up to 2% of the year statewide and 10% of the year at the Armidale node. On AEMO's own planning interpretation, these exposures would constitute unacceptable system strength gaps. This places Transgrid's approach well outside the practice of other System Strength Service Providers (SSSPs) and contrary to AEMO's standards and thus the requirements of NER 5.1.14.

2 PACR heavily depends on gas re-dispatch under unrealistic supply assumptions

Portfolio Options 1–3 rely heavily on gas re-dispatch to meet the system strength need in 2028/29 and 2029/30. Yet Transgrid states that a comprehensive assessment of gas pipeline capacity and gas supply availability was out of scope for the PACR. Instead, its market modelling applies AEMO's NEM-wide daily gas constraint from the 2024 ISP, together with an additional constraint on the daily fuel offtake for two gas generators reliant on the Sydney to Newcastle gas pipeline, based on GHD's advice. Transgrid acknowledges that these assumptions may "over-estimate the possible re-dispatch of gas, which may result in an underestimate for forecast risks of system strength gaps."[12]

The reliance on the 2024 ISP gas constraint is problematic in light of the government's recent *Review of the Integrated System Plan*. The Review found that, while the ISP uses a gas supply model to validate its assumptions, this process does not integrate the costs of gas infrastructure investments or confirm such developments are commercially feasible or least-cost. The Review warns the ISP may be assuming gas supply outcomes "that the gas market might not be able to deliver at the price or quantity assumed."[13]

Additionally, GHD noted existing tightness in the gas market and raised concerns that significant re-dispatch of gas for system strength purposes could have flow-on consequences for the gas market. GHD considered that building additional gas storage or transmission capacity "would be extremely costly and not practical as a solution for the purposes of this RIT-T."[14]

If actual gas availability is tighter than assumed — due to pipeline bottlenecks, competing gas demand, or broader market constraints — the scale and duration of the gaps in 2027/28 and 2028/29 already forecast by Transgrid will be worse, falling well short of meeting the minimum level of system strength required under NER 5.1.14(b).

The PACR includes sensitivity analysis for changes in the value of emissions reduction, the value of customer reliability, synchronous condenser costs, grid-forming BESS upgrade costs, and commercial discount rates. It is difficult to understand why no sensitivity analysis was undertaken to test the effect of tighter gas conditions, given the PACR's own admission that modelled gas supply may be overstated, and the ISP Review's finding that the current ISP gas assumptions, applied in the PACR, may not be commercially deliverable.

Under NER 5.15.2(a), a credible option must "address the identified need" and be "commercially and technically feasible." The PACR's own modelling already shows significant gaps under optimistic gas assumptions. It also accepts that augmentation of gas supply would be prohibitively expensive and not practical. This means that if the gas volumes required cannot be delivered through existing infrastructure, no new supply can be commercially developed to enable Transgrid to meet the system strength requirements under its preferred option — or under any of the other "credible" options presented in the PACR. On this basis, the preferred option is neither technically nor commercially feasible under NER 5.15.2(a), and cannot be considered highly likely to meet the identified need in accordance with NER 5.1.14(b).

Furthermore, given the very small NPV margin between Portfolio 2 and Portfolio 1, a realistic gas-availability sensitivity could materially alter the scale of non-compliance with the minimum level of system strength for both options and/or increase the relative difference of the options' net benefits. This undermines consumer confidence that bringing forward a synchronous condenser by two years — at additional cost to consumers — will deliver them significant net benefit.

Further, all so-called "credible" options in the PACR are premised on the same unrealistic gas supply assumptions. As such, none of them can really be considered credible options, and consumers cannot be confident Transgrid has examined options that would actually close the system strength gap in the least-cost way.

3 Transgrid locks in unproven, high-cost battery program without fallback or transparency safeguards

Transgrid's PACR embeds a large-scale grid-forming battery program in every portfolio option. It states:

> This RIT-T has included 5 GW of grid-forming BESS by 2032/33 and 8.1 GW by 2044/45 in all portfolio options. This is estimated to require $2.6 billion in capital costs and $0.5 billion in operating costs in addition to the investment forecast by AEMO under the Step Change scenario.[15]

The PACR states these batteries are not intended to meet the minimum system strength requirement in the near term. Rather, the BESS are included to provide waveform stability now, and might contribute to the minimum level only from 2032/33:

> Consistent with Transgrid's PADR market modelling, grid-forming batteries have been excluded from contributing to the minimum fault level requirements until 2032/33 in the PACR modelling…
>
> This fleet of grid-forming BESS is intended for the efficient level across the assessment period and for the minimum level from 2032/33. [16]

At the same time, the PACR acknowledges the technology has not yet been proven for that minimum-level role:

> … grid-forming inverter technology has not yet been deployed and tested at scale to support the minimum level of system strength. Comprehensive power system and protection studies

> need to be undertaken to confirm the effectiveness of grid-forming battery technology to provide minimum fault level support… Aurecon… concluded there is insufficient evidence (either at-scale deployments or modelled) to rely on grid-forming BESS to support minimum fault level needs until 2032/33.[17]

Nevertheless, grid-forming batteries are effectively locked in as an essential long-term component of every portfolio option in the PACR; intended to take on part of the minimum level from 2032/33. Yet, by Transgrid's admission, they are not yet technically proven for that role — and may only "potentially contribute" after further testing and demonstration at scale.

Under NER 5.15.2(a), a credible option must be "commercially and technically feasible". The AER's RIT-T Application Guidelines state an option must "would, if commissioned within a specified time, be highly likely to meet that identified need" (section 3.2.1).

Against this standard, it is not reasonable for an unproven technology to be embedded across every portfolio without publishing a modelled, costed fallback in the PACR. On Transgrid's account, we do not yet know whether grid-forming BESS will perform the minimum-level function by 2032/33; yet the PACR does not present a portfolio where the minimum level is met beyond 2032/33 without relying on BESS to contribute from that date.

The PACR's modelling approach is explicitly "deterministic". It "does not account for uncertainty," so the document does not show the residual minimum-level gap or the costed contingency if BESS prove unable to contribute from 2032/33.[18] This means consumers cannot know whether the preferred option would still be least-cost and highly likely to meet the identified need in that scenario.

It is worth noting that other jurisdictions do not currently lock in grid-forming BESS as a contributor to the minimum level in their PACR portfolios, and where future use is contemplated it is expressly conditional on proof of feasibility and paired with explicit cut-offs and fallbacks:

- Queensland (Powerlink): excludes grid-forming BESS from contributing to the minimum level in all credible portfolios except one test variant that "only considered impacts to stable voltage waveform, and not… protection system operation".[19] The preferred option meets the minimum entirely with synchronous condensers and contracted synchronous units.
- Tasmania (TasNetworks): explicitly ruled BESS "technically infeasible to meet all system strength needs within required timeframes" for the minimum level.[20]
- Victoria (AVP): treats grid-forming BESS as contributing to efficient level only for the entire modelling horizon and states the technology "has not yet been demonstrated to satisfy protection-quality fault current at scale in Australia."[21] Any future use for the minimum is conditional on proof of feasibility, with explicit 'cut-off points' to substitute BESS for synchronous plant.

By contrast, Transgrid locks in "5 GW of grid-forming BESS by 2032/33 and 8.1 GW by 2044/45 in all portfolio options" and states they are "intended… for the minimum level from 2032/33,"[22] but the PACR does not publish a costed synchronous fallback for the situation where that role does not materialise. Nor does it set a BESS-specific re-opening trigger keyed to failure to demonstrate minimum-level capability by a given date (beyond a generic clause applying to all non-network

elements).[23] This makes Transgrid an outlier in the sector and leaves consumers exposed to unquantified cost and reliability risks if the technology does not prove capable on the assumed timetable.

Governance and transparency concerns compound this risk. The HoustonKemp NPV model includes $1.367 billion in present value for "Committed and anticipated and EOI battery" in every portfolio, with the undiscounted costs, annual operating costs, locations, and timing all marked as redacted. Transgrid states the "location, quantum and timing" of BESS will be decided later through a closed EOI process, starting in late 2025 for first delivery in 2026/27.[24]

This means the largest single cost item in the preferred option:

- will be committed before the public knows where or how it will be deployed;
- cannot be cost-checked by consumers now because key data is withheld; and
- will be procured through a process with limited transparency of evaluation or selection.

The only checks come after PACR: a potential RIT-T re-opening if the non-network portfolio changes the optimal build, or the AER's ex-ante review of contract costs, on Transgrid's request.

A commitment of more than $3 billion in regulated spending for an unproven technology, with siting and delivery to be decided later in a closed process, does not give the transparency or assurance needed to confirm that this is the least-cost way to meet the immediate and longer-term part of the identified need.

4 Deficient range of credible options

The issues outlined above with Transgrid's embedding of a large grid-forming battery program in every PACR portfolio are exacerbated by the fact that the technology mix is virtually identical in all "credible" options. This approach appears to be inconsistent with the requirement in NER clause 5.15.2(b) — as elaborated in the AER's RIT-T Application Guidelines — that a RIT-T proponent:

> … consider all options it could reasonably classify as credible options, taking into account:
>
> - energy source
> - technology
> - ownership
> - the extent to which the credible option enables intra-regional or inter-regional trading of electricity
> - whether it is a network or non-network option
> - whether the credible option is intended to be regulated
> - whether the credible option has a proponent, and
> - any other factor that the RIT-T proponent reasonably considers should be taken into account.

The AER goes on to explain that:

> The number of credible options that a RIT-T proponent assesses for meeting a particular identified need should be proportionate to the magnitude of the likely costs of any credible option. For example, if the RIT-T proponent reasonably estimates that a credible option to meet an identified need was $50 million, then it should consider a larger number and range of credible options than if the estimated cost of most credible options was around $10 million, all other things being equal.[25]

Given that Transgrid's PACR proposes more than $6 billion in total regulated expenditure over the assessment period, consumers would reasonably expect to see a broad range of materially different credible options tested — not a single composition varied only by delivery dates.

However, in the PACR, all three "credible" portfolio options (1, 2 and 3):

- Lock in 5 GW of grid-forming BESS by 2032/33 and 8.15 GW by 2044/45;
- Include essentially the same program of synchronous condensers and synchronous machine upgrades; and
- Differ only in the timing of network synchronous condenser commissioning.

By holding the largest and most uncertain cost component constant across all credible options, Transgrid has not sufficiently considered alternative technology mixes (e.g., high-synchronous / low-BESS portfolios, or all-synchronous portfolio). This denies stakeholders a meaningful comparison of costs, benefits and risks between materially different ways of meeting the identified need – the very purpose of requiring a "number and range" of credible options.

Other recent system strength RIT-Ts have presented genuinely different credible portfolios:

- Powerlink Queensland – tested portfolios with materially different proportions of synchronous condensers and BESS, including an all-synchronous option, and both network-led and mixed network/non-network pathways across multiple regions.
- TasNetworks – examined four options: all-synchronous condensers, contracted existing synchronous assets, grid-forming BESS, and a hybrid.
- AEMO Victorian Planning – modelled four portfolios with different mixes of synchronous condensers, upgraded existing plant, and BESS, incorporating explicit cut-off points to pivot from BESS to synchronous plant if feasibility or contracting milestones were not met.

By contrast, Transgrid's credible options vary only in one commissioning-date parameter for synchronous condensers. No portfolio reduces or removes the BESS component in favour of more synchronous plant – even as a contingency.

To reiterate, because all credible options are essentially the same portfolio with minor timing tweaks, consumers face the same exposure to technology-performance and procurement risks regardless of which option is selected. If the assumed BESS contribution to the minimum level does not eventuate by

2032/33, for example, the PACR contains no costed, tested alternative known to be least-cost – a gap that could trigger an urgent and inefficient RIT-T re-opening at higher cost and risk to consumers.

5 Unrealistic, policy-constrained renewables forecast

The PACR's specification of the identified need and its modelling of system strength gaps are based directly on the 2024 AEMO *System Strength Report*. That report in turn takes its inverter-based resource (IBR) connection forecasts from the 2024 *Integrated System Plan* (ISP) Step Change scenario, which is policy-constrained to meet the federal government's 82% renewables by 2030 target. As AEMO CEO Daniel Westerman stated before the Select Committee on Energy Planning and Regulation in Australia when asked about the 82% target, "The ISP is not a tool to evaluate government policy… It's a tool to say what needs to be delivered in order for that government policy to succeed."[26]

As set out in past CIS submissions to the AER and to the Senate Inquiry (attached as Appendix A), AEMO has misinterpreted NER 5.22.3 in a way that creates a material risk of overstating the speed and scale of renewable generation and storage build-out. This approach also fails to comply with the requirement under NER 5.22.10 that AEMO considers the risks to consumers arising from uncertainty:

> (a) In preparing an Integrated System Plan, AEMO must…
>
> > (5) consider the following matters…
> >
> > > (ii) the risks to consumers arising from uncertainty, including over investment, under-investment, premature or overdue investment …

By constraining all ISP scenarios to the federal government's 82% renewables by 2030 target, AEMO has removed a key uncertainty that the NER requires to be considered — namely, the risk to consumers from over-investment or under-investment if actual delivery of renewables fall short. In past ISPs, AEMO ran scenarios where policy targets were not met on time, allowing planners to test the resilience of regulatory-approved investments under slower build conditions. In the 2024 ISP, that safeguard is removed. This approach to government policy settings induces premature and over-investment.

It has become increasingly clear that the target of 82% renewable energy by 2030 is unlikely to be achieved. This has been suggested by the Grattan Institute,[27] Energetics,[28] Nexa Advisory,[29] and more recently Professor Ross Garnaut.[30] Clean Energy Council data of financially committed generation projects indicate that the rate of new renewables projects being committed to has failed to increase in the past few years, with annual new committed capacity now lower than in 2018.[31]

A major barrier is workforce capacity. A UTS report commissioned by AEMO found that delivering the 2024 ISP's Optimal Development Path would require tripling the number of electrical engineers by 2029, alongside a total electricity sector workforce estimated at 200,000–400,000 by 2030.[32] The report warned that the rapid increase in requirements for workers brings a high risk of skill shortages which could impact on the delivery of the Optimal Development Path and create risks of delays, higher project costs, and increased cost of capital.[33]

If the IBR connection targets assumed by Transgrid's PACR are not met — a highly likely outcome given current workforce and supply chain constraints — or if sufficient synchronous generation and other stabilising resources cannot be delivered in time, existing coal plants will need to remain online longer to provide power and stability to the grid. Under such circumstances, the PACR's projected net market benefits could be significantly overstated, and there is a high likelihood consumers could be left paying for infrastructure that is not needed on the assumed schedule.

Under the NER and the National Electricity Objective, the RIT-T framework is intended to protect the long-term interests of consumers by avoiding both over-investment and under-investment in regulated infrastructure. Basing the RIT-T on a single, policy-constrained scenario that may be impossible to realise is inconsistent with this duty and fails to adequately guard against the risk of over-investment.

One objection to modelling a scenario that does not meet the 82% target could be that NER 5.15A.3 (b)(iv) states that RIT-Ts must:

> adopt the most recent ISP parameters, or if the RIT-T proponent decides to vary or omit an ISP parameter, or add a new parameter, then the RIT-T proponent must specify the ISP parameter which is new, omitted or has been varied and provide demonstrable reasons why the addition or variation is necessary.

However, in this instance, the variation on the ISP scenarios is necessary to protect the long-term interests of consumers, given that the 82% target is now very likely to be missed, as outlined above. Transgrid's PACR already has precedent for introducing variations on the 2023 IASR, having done so in the case of Eraring being extended to 2027 and the delayed delivery of the New England REZ transmission project.

The AER should require Transgrid to re-run its analysis with at least one scenario or sensitivity in which the 82% target is not met on time, using materially slower IBR uptake aligned with recent delivery rates. Transgrid should also test the impact of a further delay in the retirement of Eraring, as such a delay would materially affect synchronous generation availability and could materially reduce the size and duration of forecast system strength gaps. These additional tests would establish whether the preferred option is still the least-cost way to meet the identified need and whether its net market benefit persists under more plausible build-out and coal retirement assumptions.

6 Transgrid have chosen a non-viable base case, when a viable base case is available

The RIT-T guidelines require a base case to be defined where no credible option is implemented. Transgrid have defined a base case with coal-fired generation closing on-schedule, resulting in a significant amount of load shedding due to system instability.[34] The value of this curtailment dominates the cost-benefit analysis — to the point where it must be arbitrarily capped:

"At a certain point, unserved energy due to insufficient system strength becomes so large that we have capped the value of unserved energy in the base case".[35]

It is acknowledged that this case is not actually viable and would not be allowed to happen. Transgrid appealled to the Energy Networks Australia RIT-T Economic Assessment Handbook, which allows for a non-viable base case:

> Where the base case for reliability corrective actions is not considered a viable option (eg, where it includes high levels of unserved energy or risk costs that are not consistent with external standards or obligations), the RIT-T consultation documentation should acknowledge that the base case is not considered a credible option in itself, and would never be pursued by the TNSP, but has been formulated consistent with the NER and AER Guidelines as a means of comparing credible options.[36]

However, the same handbook also admits the possibility of a base case where costs incurred from extending equipment life are incorporated:

> …the base case will typically have escalating operating and maintenance costs (eg, associated with keeping ageing assets in-service), as well as potentially increases in involuntary load shedding (from outages caused by failing ageing assets) and environmental and safety risk costs faced by the TNSP.[37]

On 22 May 2024, the NSW government and Origin Energy agreed to extend the life of Eraring Power Station, thereby removing the system strength shortfall that AEMO had previously declared for July to December 2025. This therefore makes a 'coal-extension' base case entirely credible and indeed likely. As argued in section 5, the 82% renewable target is an artificial policy constraint that is unlikely to be achieved by 2030. It is this constraint that sets the schedule for the closure of coal-fired generation. However, if there is insufficient wind and solar generation to replace the coal generation, closures will not take place. Likewise, the lack of stability services to replace coal will constrain its closure timing.

A 'coal-extension' base case would consider extending coal-fired generation (estimating incurred maintenance costs), until enough generation and stability services could credibly be procured to replace it. This base case would be a 'viable' RIT-T base case, which is surely preferable to a non-viable case.

7 Transgrid should consult on substantially revised preferred solution

The PACR published by Transgrid on 14 July 2025 presents a materially altered preferred solution compared to the PADR released on 17 June 2024 and the Supplementary PADR released on 18 October 2024. Specifically, the preferred option in the PACR reduces the number of large synchronous condensers from 14 (as proposed in the PADR and Supplementary PADR) to 10, and increases the grid-forming battery capacity from 4.8 GW to approximately 5 GW. Additionally, the PACR introduces an unresolved sub-option involving either four smaller synchronous condensers or an additional 200 MW battery system in the Hunter-Central Coast region. The timing for commissioning these synchronous condensers has also been accelerated, with all 10 condensers now scheduled by 2029/30 instead of extending to 2031/32 as originally proposed.

Transgrid's Supplementary PADR explicitly stated that it was a narrow consultation aimed at assessing the impact of recent developments and sensitivities — namely a revised Eraring retirement date,

updated inverter-based resource forecasts and REZ timing from the final 2024 ISP, and a hypothetical one-year acceleration of four synchronous condensers. None of these sensitivities displaced the underlying preferred portfolio: the Supplementary PADR still rested on the 14-condenser / 4.8 GW BESS mix. It expressly noted that the developments addressed were not expected to trigger new RIT-T re-opening requirements and were planning considerations already incorporated into the forthcoming PACR modelling. Therefore, stakeholders were not informed to expect a substantially different preferred solution prior to the PACR.

Despite the significant changes to the mix of proposed solutions presented in the PACR, Transgrid did not undertake a further round of stakeholder consultation prior to publishing the report. Given that Transgrid had already issued a Supplementary PADR specifically to test relatively minor updates, it is concerning and presumably inconsistent with best practice that no similar consultation was provided when introducing such substantial alterations to the preferred solution itself. The lack of consultation on the materially revised proposal has denied stakeholders the procedural fairness expected under the RIT-T framework.

Further compounding this procedural shortcoming, Transgrid did not release the detailed modelling files underpinning the revised preferred solution concurrently with the PACR, as recommended by clause 4.4 of the Guidelines. More than three weeks after the PACR's release, critical modelling files — including the HoustonKemp NPV workbook and Baringa market modelling — remain unavailable to stakeholders.[38] This omission severely limits consumer advocates and other stakeholders' ability to effectively assess the economic and technical assumptions within the statutory 30-day dispute window.

We therefore urge the AER to direct Transgrid to undertake a further supplementary PADR consultation prior to the PACR, giving consumers and stakeholders an adequate opportunity to review and comment on the revised preferred solution.

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[2] Transgrid, *Meeting system strength requirements in NSW, Project Assessment Draft Report*, June 2024, p. 6.

[3] Ibid.

[4] Transgrid, *Meeting system strength requirements in NSW, Project Assessment Conclusions Report*, July 2025, p. 8.

[5] AEMO, *Network Support and Control Ancillary Services (NSCAS) Description and Quantity Procedure*, November 2024, p. 13; AEMO, *Amendments to the NSCAS Description and Quantity Procedure Final Report*, November 2024, pp. 10-11.

[6] Powerlink, *Addressing System Strength Requirements in Queensland from December 2025*, PACR, June 2025, p. 23.

[7] Ibid. p, 16.

[8] TasNetworks, *Meeting the System Strength Standard in Tasmania from December 2025 onward*, June 2025, p. 22.

[9] AEMO, *Victorian System Strength Requirement*, *Project Assessment Conclusions Report*, August 2025, p. 43.

[10] Ibid., p. 33.

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[12] Transgrid, *Meeting system strength requirements in NSW, Project Assessment Conclusions Report*, July 2025, p. 8.

[13] DCCEEW, *Review of the Integrated System Plan – Final Report*, January 2024, p. 19.

[14] Transgrid, *Meeting system strength requirements in NSW, Project Assessment Conclusions Report*, July 2025, p. 134.

[15] Ibid., p. 44.

[16] Ibid., pp. 132, 44.

[17] Ibid.

[18] Ibid., p. 74.

[19] Powerlink, *Addressing System Strength Requirements in Queensland from December 2025*, PACR, June 2025, p. 40.

[20] TasNetworks, *Meeting the System Strength Standard in Tasmania from December 2025 onward*, June 2025, p. 3.

[21] AEMO, *Victorian System Strength Requirement*, *Project Assessment Conclusions Report*, August 2025, p. 56.

[22] Transgrid, *Meeting system strength requirements in NSW, Project Assessment Conclusions Report*, July 2025, p. 44.

[23] Ibid., p. 110.

[24] Ibid., pp. 112-113.

[25] AER, *Regulatory investment test for transmission, Application guidelines*, p. 19.

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