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Productivity Commission's Investing in cheaper, cleaner energy and the net zero transformation

Transgrid welcomes the opportunity to respond to the Australian Government Productivity Commission Investing in cheaper, cleaner energy and the net zero transformation consultation questions.

Transgrid is committed to operating and advocating for outcomes that are aligned to the National Electricity Objectives (price, quality, safety, reliability, security and emissions), as well as the long-term interests of energy consumers. Transgrid has developed unique expertise and capability in managing one of the key parts of the Australian energy system. Our primary responsibility is to ensure the ongoing security and reliability of the electricity system as it transitions to higher renewables penetration.

We strongly support work that progress reforms that will ensure that consumers have access to cheaper, cleaner and reliable energy that benefits everyone. This is essential for a productive and prosperous net-zero economy.

Our response to the Productivity Commission consultation questions is contained in the attached submission.

We look forward to working with the Productivity Commission to advocate reform in the NEM that will allow a smooth transition to net zero. If you or your staff require any further information or clarification on this submission, please contact Zainab Dirani at zainab.dirani@transgrid.com.au, Policy and Advocacy Manager.

Yours faithfully

Monika Moutos

General Manager of Regulation, Policy and Governance

Productivity Commission - Pillar 5 Investing in cheaper, cleaner energy and the net zero transformation

1. Reduce the cost of meeting carbon targets

Background Context

Transgrid is the Transmission Network Service Provider (**TNSP**), operating in NSW & ACT. Our transmission network is at the heart of the National Electricity Market and is vital to achieving the nation's net-zero emissions targets, by connecting geographically and technologically diverse low-cost renewable generation and emerging lower-emissions electrical load.

Transgrid acknowledges that the investigation of reducing cost and improving the efficacy of Greenhouse Gases (**GHG**) policy settings and related mechanisms should be reviewed holistically as a complete set, including those impacting energy, transport and industrial sectors. Therefore, Transgrid is supportive of the Productivity Commission performing this important review. The Commission should work closely with stakeholders, analysts and bodies across sectors to arrive at Recommendations in this area.

The following responses to this Consultation paper addresses the Commission's questions through the following framing:

- What is the state, efficacy and implications of policy settings on Transgrid's own net zero trajectory; and
- How can efficiencies in policy settings related to transmission development support economy-wide emissions reduction (including Transport and Industry)

Accordingly, the scope of this response will not focus on the integration and cost efficacy of emissions policies in adjacent energy sector industries, such as generation, distribution, retail and demand-side participation. This excludes policies such as: The Safeguard Mechanism, Capacity Investment Scheme, Renewable Energy Target (**RET**) subsidies.

Transgrid is committed to the reduction of the organisation's own greenhouse gas emissions, the transmission network, the energy sector and broader economy where it is prudent and efficient.

Transgrid's greenhouse gas emissions (GHG) portfolio is typically comprised of the following:

GHG Scope	Description	Proportion (% FY21 baseline)	Primary emissions sources
Scope 1	Direct emissions from sources owned or controlled by the organisation.	c.1%	• SF6 a greenhouse gas used in our network equipment • Diesel, petrol and natural gas generated by our vehicle and plant fleet
Scope 2	Indirect emissions from electricity consumed.	c.87%	• Indirect emissions from transmission system loss • Electricity generated to power offices and non-network assets
Scope 3	Indirect emissions from upstream and	c.12%	• Purchased goods and services

GHG Scope	Description	Proportion (% FY21 baseline)	Primary emissions sources
	downstream value chain activities.		• Materials and fuels used in construction and maintenance projects

Transgrid has developed a strategy to meet net zero targets and commitments centred around addressing the following key areas:

- Accelerated delivery of the transmission infrastructure required to support a decarbonised network that will reduce emissions associated with transmission system losses. The slower than forecast energy transition, changing demand profiles, and concerns around system strength all pose risks to Transgrid's ability to deliver against this objective, limiting both the organisation's and the economy's decarbonisation efforts.
  - Policies focused on effectively addressing the later recommendations of this submission (e.g. 'Speed up approvals for new energy infrastructure') will be critical to deliver whole of economy emissions reductions benefits.
- Transition away from the usage of SF6 across the network, which is dependent on the availability of commercially and technically viable alternatives.
  - A policy environment that encourages innovation and stimulates investment into low emissions technology and equipment such as high voltage SF6 alternatives is required to support this.
- Decarbonisation of operations including electricity consumption and electrification of fleet.
  - The availability of commercially viable alternatives is also a key risk to the achievement of this objective, particularly where it relates to heavy machinery.
- Procurement of lower emissions goods and services.
  - The availability of cost-effective lower emissions goods and services, competitive supply chains and long lead times all pose risks to the organisations ability to decarbonise the supply chain.

What could be done to improve the cost-effectiveness and alignment of policies to reduce emissions across the industry, electricity and transport sectors?

Alignment of Government Emissions Targets and Integration into centralised energy system planning

The energy industry (and transmission in particular) relies on integrated whole-of-system planning to understand and implement emissions reduction signals, which are determined and informed by Government policy at the State and Federal level.

Most notably, these emissions reduction targets are integrated into the development of AEMO's bi-annual Integrated System Plan via 'hardcoded' constraints which must be met the model. By taking into account these emissions policy targets and other techno-economic constraints, the Integrated System Plan (**ISP**) provides companies within the energy industry an 'optimal' pathway for energy system development and simultaneously achieve emissions-reduction targets. For example, the 'actionability' of significant transmission projects is determined through this process.

The multi-scenario approach employed by the ISP also gives rise to the conditions in which the energy system must evolve to support the decarbonisation of sectors such as transport and industry. Relevant Government policies relating to these Sectors are also incorporated into the ISP.

Despite the myriad of benefits of this general approach, some issues arise:

- In some instances that there can be misalignment between the ISP's model's outputs and what is achieved by the energy industry.
- There are instances of divergence of Federal and State Government emissions policy, which can cause elements of discord in the implementation of these investment and emissions reduction signals.
- Emissions reduction signals and confidence can be weakened through changes in energy policy and direction, which can in turn cause inefficiencies to arise. This can be exacerbated through the divergence and/or derogation of jurisdictions from centralised NEM planning frameworks.
- Interplay and relationships of emissions policy settings on industrial, electricity and transport sectors can be fragmented and not understood or sufficiently applied in a cross-sectoral capacity.

RECOMMENDATIONS: Continue to drive consistency, clarity and transparency in emissions policies across policy frameworks, Federal and Jurisdictional arrangements and planning framework integration. Consider how emissions-reduction policies can be applied cross-sector to drive optimal outcomes.

Incorporation of emissions imperative into National Electricity Objectives (NEO)

In 2024, an emissions reduction objective was incorporated into the NEO. This aimed to integrate emissions reduction and energy policy. As part of this change, an interim Value of Emissions Reduction (**VER**) was published to value emissions reductions within regulatory processes (with a value set at $\$33/tCO_2$-e in 2024, with an escalation applied each year to 2050). The market is anticipating the development of a Final VER, which will either supersede or confirm the interim value by 30 June 2026.

The regulatory change enacted by the Australian Energy Market Commission (**AEMC**), Australian Energy Market Operator (**AEMO**) and the Australian Energy Regulator (**AER**) to integrate this objective was expected to have direct impacts on how TNSPs plan, build, operate and manage their electricity transmission networks, including the criteria used to select / plan / approve transmission infrastructure projects (e.g. cost benefit analysis (**CBA**) / Regulatory Investment Test for Transmission (**RIT-T**) and funding for base business operations (e.g. AER Revenue Determinations).

The intended outcomes of incorporating emissions into the NEO was ostensibly to incentivise energy market participants, including TNSPs, to invest in lower-emissions projects, infrastructure, assets and practices, where it is prudent and efficient to do so.

However, there are some potential issues which may cause a disconnect between intended and resulting outcomes, for example:

- The Interim VER is lower than many international jurisdictions' carbon price, particularly in the period before 2036. It is also far below the UK's traded carbon values (and forecast), indicating that emissions may be undervalued in terms of the costs of achieving legislated targets.
- The treatment and implementation of the VER into regulated electricity networks' 5-year AER Regulatory Determinations is under review. Before this is finalised, it may be challenging for Network Service Provides (**NSP**) to understand how to best implement emissions reduction strategies and capabilities into their base businesses.
- The magnitude of the Interim VER is unlikely to drive changes to operational practices and investment behaviour in the short-medium term, particularly for hard-to-abate emissions sources. This is due to

- the currently high cost differential between legacy technology options and emerging alternative (e.g. SF6 alternatives, green steel, etc.).
- The emissions boundary applied within the NEO only captures changes to Australia's greenhouse gas emissions, excluding emissions associated with construction material and equipment procured in other federal jurisdictions. In the absence of an agreed Carbon Border Adjustment Mechanism within the Australian jurisdiction, this may result in decisions that favour carbon leakage and don't account for the full embodied emissions associated with an investment decision.
- Despite the incorporation of emissions into regulatory investment tests for transmission infrastructure projects, at this very early stage, it is presently unclear if this will result in consistently positive market emissions benefits within transmission project modelling. The timely approval and completion of transmission projects is vital to deliver the energy transition, including enabling NSW's retirement of coal generation and achievement of the State's net zero targets.

RECOMMENDATIONS: Review and develop a Final VER in FY 2026 and provide clarity on applicability within AER Regulatory Determinations. Ensure the magnitude and application of the VER drives intended emissions reduction behaviour for entities within the energy sector whilst balancing electricity consumer outcomes of cost efficiency and investment prudency.

Are there gaps in the emissions-reduction policies in the industrial, electricity and transport sectors which should be addressed?

- This is addressed in the section above.

Are there any duplicative emissions-reduction policies in the industrial, electricity and transport sectors which could be streamlined?

- No response.

2. Speed up approvals for new energy infrastructure

Are planning and approvals processes for large energy infrastructure taking too long? If so, what causes the most delay?

Transgrid is currently in the process of constructing three major new transmission lines (Project EnergyConnect, HumeLink and Victoria-NSW Interconnector (**VNI**) West, in order of current progress) as well as multiple other smaller projects to ensure the stability and reliability of the NSW transmission system.

There are several barriers in the regulatory landscape to the completion of projects with the absolute urgency with which they are required (according to the ISP). Each of these barriers is discussed below.

Overlapping and competing frameworks

TNSPs must operate within multiple regulatory frameworks, including national regulation led by the AER, AEMO's ISP and the NSW Electricity Infrastructure Roadmap. There is also the declaration of projects under the Critical State Significant Infrastructure (CSSI) initiative in NSW.

Each of the current participants plays a significant role, but there is a clear opportunity to streamline overlapping responsibilities and remove unnecessary duplication, which imposes cost burdens on

consumers. The overlapping and competing frameworks create uncertainty around the allocation of responsibilities. TNSPs would like to see greater certainty regarding who is the responsible provider, particularly in cases of ISP projects, with firm delivery dates, so that these projects can be delivered as soon as possible. The frameworks must also be flexible in the context of rising supply prices.

Transgrid supports the establishment of transparent criteria or tests to determine whether a proposed augmentation project should proceed under the National Electricity Rules (NER) or the Electricity Infrastructure Investment (EII) Act framework. Clear decision rules will enhance planning certainty and regulatory alignment.

RECOMMENDATIONS – National and state regulators provide greater certainty regarding who is the responsible provider, particularly in cases of ISP projects, with firm delivery dates, so that these projects can be delivered as soon as possible.

Appropriate returns for major greenfield investments

The NEM transmission network is experiencing a period of rapid growth and investment, as part of the realignment to enable thermal generation to be replaced with wind and solar, firmed with storage. NSW is at the centre of the NEM and is the location of multiple current major projects. The development of these multi-billion-dollar greenfield projects represents a fundamentally riskier investment proposition to the simpler task of maintaining and operating a largely existing network. In particular, the myriad of possible delays associated with greenfield projects can pose significant risks of cost escalation.

Further measures are currently required to bolster investor confidence to support the development of critical new projects. Transgrid would like to see the Australian Energy Regulator's (AER) Rate of Return Instrument take account of the clear difference between the risk a TNSP faces in undertaking major greenfield projects, compared to 'business as usual' projects, with investors compensated accordingly.

In the absence of a higher regulated rate of return, major greenfield transmission projects are likely to continue to require support from Government (as has been provided for HumeLink, VNI West and Project EnergyConnect via the Rewiring the Nation fund). Other recent initiatives, including provision for changes to depreciation schedules and improvements to cost pass through rules have made some improvement to investment conditions for TNSPs. However, more significant changes are required to ensure that major projects essential for the energy transition are delivered as quickly as possible by attracting the appropriate investment.

In March 2025, the AER commenced its review of the 2026 Rate of Return Instrument (RORI). The RORI highlights the rate of return an energy network business receives on its regulatory asset base, known as the return on capital. This is a key driver of the total amount of revenue the business derives from network revenue determinations made by the AER. The rate of return provides a network business with money to pay interest that accrues on its loans and provide shareholders a return on their equity investment.
Transgrid believes that:

- The methodology of using a simple trailing average for calculating the cost of debt is incompatible with the significant Major Projects discussed above. A weighted trailing average approach to the return on debt in certain circumstances should be considered.
- More research should be undertaken regarding the equity beta, particularly given the reduction in the number of listed Australian comparator firms in recent times and the appropriateness of using international comparator firms to inform the AER's work going forward.

RECOMMENDATION – There needs to be appropriate compensation for private investors and debt providers for the risk associated with large scale investments. This will ensure that the right level of equity and debt is attracted in order for the energy transition to proceed.

Risk of penalties for capex overspends

Electricity and gas NSPs, including TNSPs such as Transgrid, are subject to a regulatory regime that seeks to replicate the rigour and incentives faced by a firm operating in a competitive environment. Part of the regulatory toolkit at the AER's disposal is a range of incentive sharing schemes, including the Efficiency Benefit Sharing Scheme (**EBSS**) for opex and Capital Expenditure Sharing Scheme (**CESS**) for capex. The schemes are conceived of as 'symmetrical' incentives that provide networks the opportunity to retain a portion of an underspend, while being unable to recover a (generally the same) proportion of an overspend. In practice, when it comes to the delivery of multi-billion dollar greenfield projects, the CESS, exposes the developer to the risk of very large overspend (at a sharing ration of 30:70 between the network and consumers), a developer whose project sees a capex cost escalation of $1 billion on a major project would face a CESS penalty of $300 million. In a broader environment of escalating material and major project costs, this penalty presents investors with a far greater risk that the prospect of gaining a benefit from delivering a project under budget by a similar amount. This risk is inevitably a consideration for investors considering committing large amounts of capital to major greenfield projects.

Transgrid acknowledges that the AEMC made a recent rule change which goes some way to improving the balance of opportunities and risks presented to NSPs by the CESS.[1] The new regime allows the CESS to be applied differently to ISP projects, including specific ex post assessments of whether expenditure is prudent and efficient. The AER has the power to amend a CESS following an ex post assessment if expenditure, including an overspend, is prudent and efficient.[2] However, any change remains at the AER's discretion. This means that it is still within the rules for a NSP to experience a capex overspend on a project and despite the AER finding to overspend to be prudent and efficient, the TNSP is still potentially subject to a CESS penalty. For investors choosing investments from across the globe and assessing regulatory risk, such discretion presents a material consideration and unnecessary risk that needs to be priced and managed. This will impose a risk to funding as the scheme in its current form will find it more difficult than necessary to attract project funding, which is essential to meeting the National Electricity Objective for the benefit of consumers. Transgrid will continue to advocate for CESS arrangements that minimises uncertainty for investors about penalties for overspends of capex allowances that are subsequently found to be prudent and efficient.

RECOMMENDATION – There should be no CESS penalties where the ex-post review finds an overspend amount to be prudent and efficient. This will ensure that investors are attracted to invest in the energy market in Australia.

Increase RIT-T threshold

Regulated revenue investments must undergo the RIT-T in accordance with the National Electricity Rules.

As set out in clause 5.16 of the National Electricity Rules, the RIT-T exists to identify the option that maximises the present value of net economic benefit to all who produce, consume and transport electricity in the market.

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1 See: https://www.aemc.gov.au/rule-changes/managing-isp-project-uncertainty-through-targeted-ex-post-reviews

2 AER, *(draft for consultation) AER Capital Expenditure Incentive Guidelines May 2025 – market up*, cl 2.8.1, page 9, available at: https://www.aer.gov.au/documents/draft-consultation-aer-capital-expenditure-incentive-guidelines-may-2025-marked

In January 2025, the AER increased the RIT-T threshold from $7 million to $8 million. However, this does not reflect of cost increases nor represents the level that stakeholders have interest in.

The low RIT-T threshold is costing consumers collectively a substantially large amount of money with no clear benefits, and delays projects which has a cascading effects on the network and therefore the transition to net zero target. The lack of submissions shows that the public does not want to be involved.

RECOMMENDATION – Increase the RIT-T threshold to $45 million. This will allow TNSPs to allocate resources appropriately rather than dedicate considerable resources on numerous regulatory documents required to complete the RIT-T process which are not used or viewed by external stakeholders.

Social licence

Social licence is critical to the successful delivery of major transmission projects and public acceptance of the broader energy transition. We recognise the Australian Energy Regulator's updated Cost Benefit Analysis guidelines, which reflect its directions paper on social licence for electricity transmission projects.

There is still a degree of uncertainty around the nature and extent of social licence costs that can be recovered under existing mechanisms, especially those not prescribed in jurisdictional laws but are critical for building community acceptance of major transmission projects. There is a need for some prescription under the NER to specify those categories of social licence expenditure that can be recovered by TNSPs.

Additionally, social licence costs arising from State planning and environmental processes that result in changes to route or project design should be allowed as a pass-through cost, provided that such costs are prudent and efficient. The rationale for this is, at times, the project-specific issues and stakeholder concerns are only identified during the assessment process. More broadly, social licence would benefit from clearer top-down direction from Governments and market bodies.

Transgrid is increasingly hearing from landholders that they support of community benefit packages to support social licence for the transition. Currently, NSW has introduced a Community and Employment Benefit Program within its Renewable Energy Framework (**REZ**) framework, with $128 million announced for communities in Central-West Orana REZ. While this is a State Government package, Transgrid suggests a similar model of government investment in social licence should be considered for transmission. Transgrid would welcome any opportunities for the Australian Government to collaborate with TNSPs to support social licence initiatives, meet renewable generation targets, and emissions reduction targets.

Engagement is a critical component of social licence, which helps build trust and gain community acceptance of our projects in early concept and planning. It helps us demonstrate opportunities to codesign project elections such as route selection, workers accommodation sites, and modifications in proposed construction methodology. We acknowledge the AER is increasingly recognising the importance of social licence in its revenue determinations, of which engagement forms a vital component.

RECOMMENDATION - We would welcome further opportunities for collaboration between TNSPs and the Australian Government to improve social licence so that the energy transition objectives are met.

Biodiversity

Transgrid fully support a biodiversity offsets regime that exercises the avoid-minimise-offset impact hierarchy, establishes offset liabilities that reflect biodiversity impacts, and facilitates best-practice offset acquittal at lowest-cost to the proponent and the consumer.

Maintaining the availability of a deferred offset approach is critical for delivering best-practice biodiversity outcomes. For instance, under PEC, we will deliver seven fully funded, and active Biodiversity Stewardship Agreements (**BSA**), which will ensure in-perpetuity protection of four threatened ecological communities, five threatened fauna species, and twelve threatened flora species. Through a deferred offset approach, we have been able to deliver this best practice biodiversity outcome at lowest cost to the consumer.

Infrastructure proponents are generally required to finalise offset plans and strategies prior to project approval. For long, linear transmission projects, this is frequently impractical. In some cases, landowners may decline access for environmental surveys, delaying identification of biodiversity values. Given the conservative nature of impact assessment, this can lead to overstated offset liabilities at the approval stage.

We also acknowledge that for some projects, such as the Liverpool Range Wind Farm, the Commonwealth Conditions of Approval (**CoA**) had not permitted partial clearing for protected matters. This was a departure from the State CoAs, which did permit partial clearing. For long, linear projects such as transmission, recognition of partial loss is critical to ensuring biodiversity offsetting requirements reflect true impact.

Transgrid welcomes the opportunity to work with the Commonwealth to ensure a deferred offset approach remains available, along with addressing land access issues.

RECOMMENDATION - We encourage the Commonwealth to ensure this remains available. We also encourage the Commonwealth and State Governments to adopt a standard CoA template for major transmission projects, which could address concerns about inconsistencies between CoAs.

How can planning and approvals processes be sped up without unduly compromising regulatory standards?

TNSPs work collaboratively with the AER and key stakeholders through several processes. We believe regulatory standards are maintained through the following:

- There is detailed analysis and engagement undertaken by the AER on expenditure and capital projects through the AER 5 year revenue determination process.
- Incentive framework – including the EBSS and CESS.
- Transgrid's annual Transmission Annual Planning Report (**TAPR**) provides a comprehensive list of planned projects which stakeholders could seek further clarity on.
- Transgrid undertakes various engagement processes with key stakeholders include Transgrid's Advisory Council (TAC), industry forums, one on one meetings with industry peers.
- Annual reporting documentation such as the Regulatory Information Notices (RIN) and others play an important role in the governance process.

Should clean energy projects be treated differently to other projects for the purpose of environmental and other approvals? If so, how?

No response.

What can be done to build local community support for new energy infrastructure projects?

It is important that stakeholder and community mapping on project study area is conducted to identify sensitive areas and community assets. Several important factors to consider include:

- Demonstrating transparent consultation - early engagement on the ground to discuss the project as a concept and gather local / place-based knowledge to inform project concept and mitigation strategies. Inform community on how the proponent will move from concept to final alignment phase, providing the transparency of the process including when community feedback will be sought. It is important to demonstrate how community feedback has influenced the project alignment and advise why community suggestions cannot be adopted.

- Being visible in community, meeting with local stakeholders as early as practical, promote participation in community grants program to build a foundation for long term relationships

- Social impact mapping and community intelligence to identify and assess potential social impacts of proposed energy infrastructure project with local communities

- Engage local agencies and councils to get assessments on community needs

Develop local employment, workforce development and training strategies and identify early opportunities for local procurement and industry engagement.

RECOMMENDATION – We recommend to:

1. Continue to refine the process of how projects will be developed from concept to final design and explain how and when community feedback will be incorporated and used during project development.

2. Establish a regular forum to engage with key community representatives.

3. Co-design community benefit sharing with community and key local stakeholders.

Please outline any evidence showing the productivity benefits of faster approvals for energy projects.

No response.

3. Encourage adaptation by addressing barriers to private investment

No response.