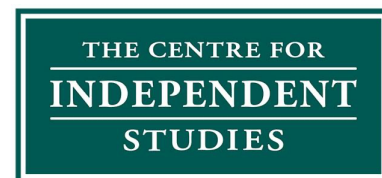


24 September 2025



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Kurtis Wathen
NSW Government Planner

Submitted online:

<https://www.planningportal.nsw.gov.au/major-projects/projects/hunter-transmission-project>

Dear Kurtis

RE: Submission to Hunter Transmission Project

The Centre for Independent Studies (CIS) welcomes the opportunity to respond to the Hunter Transmission Project (HTP) Environmental Impact Statement.

The CIS is a leading independent public policy think tank in Australia. It has been a strong advocate for free markets and limited government for nearly 50 years. The CIS is independent and non-partisan in both its funding and research, does no commissioned research nor takes any government money to support its public policy work.

We are concerned that the HTP has been entered into the environmental impact consultation stage with claims about affordability and electricity prices that are unsubstantiated. In particular, we contest the repeated assertion that the project will lower electricity costs for consumers and deliver “affordable electricity” in the long run.

Claims of delivering affordable electricity are unsubstantiated

The EIS repeatedly claims the project will “deliver a more reliable and more sustainable electricity grid by increasing the amount of renewable energy that can be delivered across the electricity grid”, which “would provide NSW households with greater access to reliable and affordable electricity.”¹ The Executive Summary further states the project will “commence operation by the end of 2029 providing reliable electricity to consumers at a reasonable cost”.²

These are assertions without the backing of analysis. Nowhere in the EIS or Technical Reports is there any modelling of consumer bill impacts, TUOS pass-through, or with/without price scenarios. The proponent does not present a consumer-facing cost-benefit analysis: there is no household bill modelling, no wholesale price trajectory, no accounting for TUOS recovery of billions in capex, and no sensitivity tests for REZ delays, marginal loss factors, or curtailment.

Instead, the EIS leans on the fact that AEMO’s 2024 Integrated System Plan (ISP) has classified HTP as “an urgent NSW Actionable Project”.³ The presumption is that because the ISP identifies the project as “Actionable”, it must therefore deliver affordability benefits. This is a misreading of the ISP.

AEMO itself has made clear that the ISP does *not* demonstrate affordability. As AEMO CEO Daniel Westerman publicly stated before the Select Committee on Energy Planning and Regulation in Australia:

The ISP costs include grid scale generation, storage and transmission. These costs are used to map out the optimal development path. They are **not used to forecast prices or to evaluate the overall costs** of the transition. (emphasis added)⁴

A project flagged as 'Actionable' does not equate to lower consumer costs, and any attempt to treat ISP designation as proof that HTP will deliver affordable electricity is misleading.

Further, the ISP does not provide a realistic base case for assessing affordability, as it does not represent the lowest-cost scenario for consumers, or even scenarios likely to occur. Rather, all ISP scenarios are policy-constrained to meet government targets, including the federal government's 82% renewables by 2030 target. When asked about the 82% target by the Select Committee, Westerman confirmed that "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."⁵

As set out in the CIS submission to the Energy Planning and Regulation in Australia Senate Inquiry (attached as Appendix A), AEMO has misinterpreted NER 5.22.3 in a way that creates a 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: 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,⁶ Energetics,⁷ Nexa Advisory,⁸ and more recently Professor Ross Garnaut.⁹ 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 2018.¹⁰

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 2030.¹¹ The report warned that the rapid increase in requirements for workers brings a high risk of skill shortages that could impact on the delivery of the Optimal Development Path and create risks of delays, higher project costs, and increased cost of capital.¹²

Against this backdrop, Appendix 6 of the ISP shows that while the HTP contributes around \$3.8 billion in gross market benefits under the Step Change scenario, once costs and scenario weightings are considered the weighted net market benefit is only \$99–251 million NPV on a project cost of \$1.178 billion.¹³ These relatively narrow margins are highly contingent on rapid renewable build-out and avoided gas investment in Sydney — outcomes that are highly unlikely to materialise.

Evidence from CSIRO and other experts suggests costs will rise with renewables system

The EIS positions the HTP as aligned with the NSW Transmission Infrastructure Strategy, which identifies priority projects that “can keep downward pressure on electricity prices for customers through to 2050”. The EIS then claims that HTP is consistent with this strategy by enabling the connection of renewable energy projects in the Central-West Orana and New England REZs to the NEM, which would “provide... cost savings to energy consumers”.¹⁴

This is misleading. As discussed already, there is no evidence that HTP will put downward pressure on electricity prices or deliver cost savings to consumers. Wholesale electricity prices remain elevated around \$152/MWh in NSW in 2024–25,¹⁵ levels that Energy Minister Chris Bowen acknowledged were already unaffordable as of April 2024: “We have never denied that electricity prices are higher than we would like. That’s why we’ve delivered three rounds of energy bill relief.”¹⁶ The EIS provides no consumer-facing analysis to show how building HTP will reverse this reality.

The 2024-25 CSIRO GenCost report shows a 90% renewables grid, which the HTP is designed to support, will deliver substantially *higher* electricity prices than currently faced by consumers. GenCost data indicates the costs for integrated renewables at 90% penetration range from a lower bound of \$125/MWh to an upper bound of \$176/MWh. At \$152/MWh, NSW is already well above the lower bound and heading toward the upper bound of that range; with renewables currently providing only 35.3% of generation (excluding imports). Far from promising cheaper power, these figures expose how little basis there is for claiming HTP or any transmission projects supporting the renewables transition will deliver affordability.

Additionally, the lower bound of integrated renewables costs is not a credible representation of real-world costs. It represents the upper bound of CSIRO’s assumed capacity factors, being 32% for solar and 48% for wind, which are not realistic average capacity factors for new projects. The upper bound of the renewables cost estimates is more realistic as an average, though CSIRO assumes the lower bound of capacity factors to be only 10% below the current

average, at 19% for solar and 29% for wind, which is likely to still be too optimistic for a grid with 90% renewables.

As more high-quality wind and solar sites are taken, new solar and wind farms must be built on sites with increasingly poor-quality resources. This means the average capacity factors for solar and wind across the NEM would be much lower at 90% renewables penetration than at current levels.

The inevitability of declining resource quality with increasing renewables penetration is highlighted by a wind project recently seeking approval in NSW, the Hills of Gold Wind Farm.¹⁷ The Independent Expert Advisory Panel for Energy Transition report revealed:

- The proponent volunteered a benchmark capacity factor for wind in NSW of 32.1%, which is lower than the average of AEMO ISP workbook values of 33.3%.
- The proponent volunteered a marginal loss factor (transmission losses) of 0.92 for their own project, but argued that the average for NSW wind farms is 0.89, according to Aurora Energy Research.
- The Panel considers that Hills of Gold wind resource is “probably slightly better than average” and that “Many of the ‘easiest’ i.e. most favourable sites in NSW have already been developed. Hence the pipeline of remaining sites all have less than ideal conditions in one or more respects.”

CSIRO does not include marginal loss factors in the GenCost report. Including transmission losses of around 10% in the benchmark capacity factor results in delivered energy from wind farms being only around 29% of maximum output. This confirms that the average capacity factor of wind farms in NSW is currently ~29%. Since the most favourable sites have already been taken, remaining sites will deliver a lower average capacity factor for future projects comprising a 90% renewables grid. A similar phenomenon also occurs for solar projects, as the most ideal sites are taken, with only less ideal, more expensive sites left for new projects.

In addition to optimistic capacity factors, CSIRO also underestimates renewables integration costs. Battery expert Alex Wonhas has indicated Australia may need more than double the amount of battery storage previously thought, which CSIRO appears to have ignored.¹⁸ CSIRO has also ignored the recent escalation and blowouts in transmission costs, which have created financeability problems for network operators — a challenge NSW Energy Minister Penny Sharpe acknowledged during Budget Estimates (29 August 2025) as increasingly affecting the rollout of transmission projects.¹⁹ CSIRO also appears to have underestimated the number of synchronous condensers and other firming infrastructure required by a 90% renewables grid; though quantifying this is difficult, given CSIRO is refusing to release the underlying modelling. All these additional costs mean CSIRO’s cost estimates are likely to be greatly underestimated, even at the upper bound.

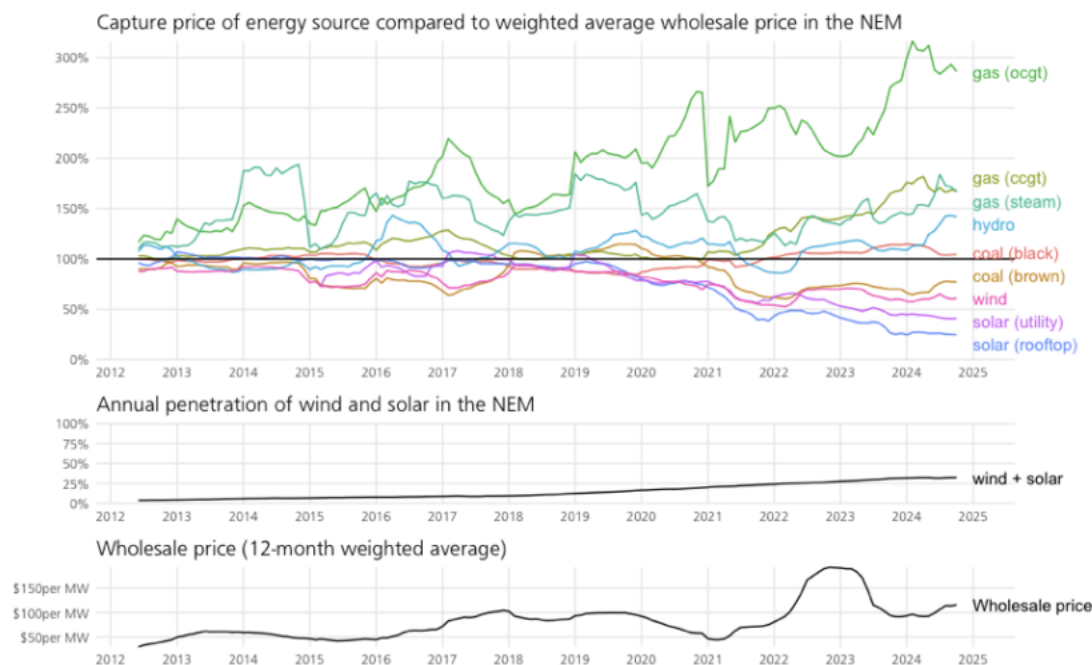
Therefore, CSIRO’s upper bound for integrated renewables of \$176/MWh should be taken as a lower bound for future electricity prices in a 90% renewables grid. Electricity prices cannot fall below this at 90% renewables penetration, which the HTP is designed to support. This means

consumers will face prices substantially higher than the currently unaffordable electricity prices in future. The HTP cannot deliver affordable electricity to consumers.

In an explicit and simple calculation, Professor Bruce Mountain has also demonstrated that costs for transmission will increase substantially under the Victorian energy plan.²⁰ This shows the massive increase in the regulated asset base for transmission will put upward pressure on electricity prices, rather than the claimed downwards pressure.

Capture price dynamics limit wholesale cost impact of new renewables

Currently the capture price of wind and solar is significantly depressed, as higher penetrations of wind and solar continue to self-cannibalise their own revenues. This can be seen in the following figure derived from OpenElectricity data.



Wholesale prices will become increasingly dominated by higher-cost firming output. As shown in the graph, prices haven't consistently fallen as more renewables have been added. Instead, they have risen over the last decade. There is very limited capacity now for average wholesale prices to be meaningfully reduced by pushing low or negative prices even lower, and below the ultimate cost of generating and delivering the energy. The true costs must be recovered elsewhere, either in higher prices charged by dispatchable generators for their firming roles, or through subsidies, or other regulated charges. In other words, rather than putting downward pressure on prices as claimed, the current plan will see consumer prices rise further.

No basis for claiming system security and reliability

The EIS claims that the project will “strengthen the supply of clean and reliable electricity to consumers — particularly in the Hunter, Sydney and Illawarra where 80% of the State’s electricity is used” and will “avoid breaches of the NSW Energy Security Target as outlined in the NSW *Electricity Infrastructure Investment Act 2020*”.²¹

However, this overlooks the reality that increasing reliance on inverter-based resources (i.e. wind and solar) imposes significant new costs to consumers to ensure system security can be provided without rotating machines, or with synchronous condensers to make up for the lack of inertia, fault current, and other characteristics of a secure system. The recent Transgrid PACR for System Security makes it clear that NSW will not have sufficient rotating machinery to provide a suitably secure system if the Eraring Power Station closes in 2027 as planned.²² There is therefore no basis for the assertion that HTP will “strengthen the supply of clean and reliable electricity” — transmission lines do not create inertia or dispatchable capacity to replace retiring thermal generators.

Given the scale of environmental and community impacts associated with the Hunter Transmission Project, approval should rest only on substantiated, verifiable benefits. Assertions of affordability, reliability and consumer benefit that lack credible analysis cannot justify proceeding with the project.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'A Morrison'.

Aidan Morrison
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Centre for Independent Studies
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- ² EnergyCo. 2025. *Hunter Transmission Project. Executive summary*. p. 3.
- ³ EnergyCo. 2025. *Hunter Transmission Project. Environmental Impact Statement*. p. 41.
- ⁴ Commonwealth of Australia. 'Official Committee Hansard Senate Select Committee on Energy Planning and Regulation in Australia. Thursday, 5 December 2024'. p 32.
- ⁵ Ibid. p 41.
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- ⁶ Richard Yan, "Now comes the hard part of the great energy transition", Grattan Institute, 2024.
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<https://www.energetics.com.au/insights/thought-leadership/why-australia-is-not-on-track-to-achieve-a-43-emissions-reduction-by-2030>.
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- ¹³ AEMO. 2024. *Appendix 6. Cost-Benefit Analysis*. p. 87.
- ¹⁴ EnergyCo. 2025. *Hunter Transmission Project. Environmental Impact Statement*. p. 46.
- ¹⁵ OpenElectricity. <https://explore.openelectricity.org.au/>. Accessed 22 September 2025.
- ¹⁶ Energy Minister Debate on 10th April 2025 at the National Press Club.
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²¹ EnergyCo. 2025. *Hunter Transmission Project. Environmental Impact Statement*. p. 31.

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