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Planning Panels Victoria

Submitted online:
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RE: Submission to the Warracknabeal Energy Park Inquiry

The Centre for Independent Studies (CIS) welcomes the opportunity to respond to the Warracknabeal Energy Park (WEP) Inquiry on the Environmental Effects Statement (EES).

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 WEP 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 EES summary report claims the "Warracknabeal Energy Park aims to provide affordable, clean, renewable energy".[1] Chapter 2 goes on to state one of the key objectives for the project is to "provide a low-cost source of renewable energy to help power Victoria and south-eastern Australia",[2] and mention "a low-cost source of electricity"[3] as one of the project benefits. It also cites the Powering Australia Plan's objective to "ensure reliable and affordable electricity to deliver the greatest benefits for Australian households, businesses and communities".[4]

These are assertions without the backing of analysis. Nowhere in the EES or appendices is there any modelling of consumer bill impacts. The proponent does not present a consumer-facing cost-benefit analysis: there is no household bill modelling, no wholesale price trajectory, and no sensitivity tests for marginal loss factors or curtailment.

The Integrated System Plan cannot be used to economically justify the project

The EES makes reference to the Integrated System Plan's stated need for new generation and storage.[5] However, 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)[6]

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."[7]

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,[8] Energetics,[9] Nexa Advisory,[10] and more recently Professor Ross Garnaut.[11] 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.[12]

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.[13] 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.[14]

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

There is no evidence that WEP will put downward pressure on electricity prices or deliver cost savings to consumers. Wholesale electricity prices remain elevated around $100/MWh in VIC 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 EES provides no consumer-facing analysis to show how building WEP will reverse this reality.

The 2024-25 CSIRO GenCost report shows a 90% renewables grid 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 that any 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.

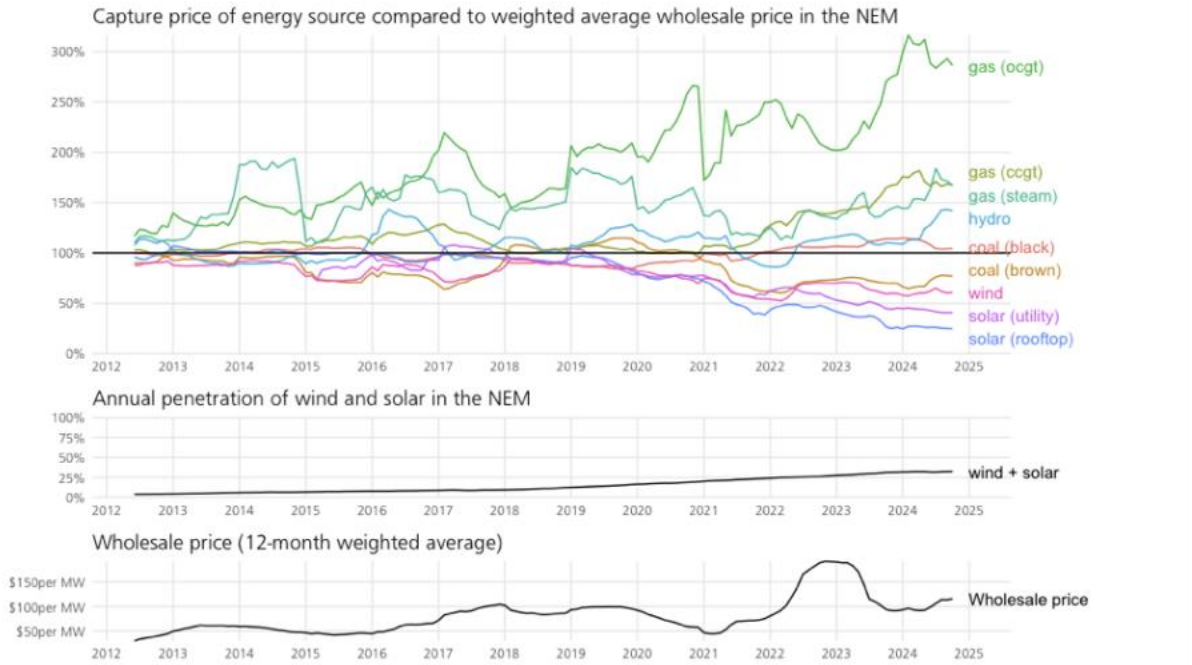
In addition to optimistic capacity factors, CSIRO also underestimates renewables integration costs. Battery expert Alex Wonhas has indicated Australia may need more than double the amount of battery storage previously thought, which CSIRO appears to have ignored.[18] CSIRO has also ignored the recent 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. This means consumers will face prices substantially higher than the currently unaffordable electricity prices in future. The WEP 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 EES states that a key objective of the project is to "increase generation and storage capacity and reliability in the NEM",[21] and also claims that the proposed BESS will "play an important role in helping to stabilise the electricity grid".[22]

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. For example, 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.[23] There is therefore no basis for the assertion that WEP or its BESS component will "help to stabilise the electricity grid" — BESS does not create the inertia or system strength to replace retiring thermal generators.

Given the scale of environmental and community impacts associated with the Warracknabeal Energy Park, 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,

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[1] Warracknabeal Energy Park. 2025. *Environment Effects Statement – Summary Report*. p. 1.
[2] Warracknabeal Energy Park. 2025. *Environment Effects Statement – Chapter 2 – Project rationale*. p. 5.
[3] Ibid. p. 7.
[4] Ibid. p. 1.
[5] Ibid. p. 2.

[6] Commonwealth of Australia. 'Official Committee Hansard Senate Select Committee on Energy Planning and Regulation in Australia. Thursday, 5 December 2024'. p 32.

[7] Ibid. p 41. https://parlinfo.aph.gov.au/parlInfo/download/committees/commsen/28660/toc_pdf/Energy%20Planning%20and%20Regulation%20in%20Australia%20Select%20Committee_2024_12_05_Official.pdf.

[8] Richard Yan, "Now comes the hard part of the great energy transition", Grattan Institute, 2024. https://grattan.edu.au/news/now-comes-the-hard-part-of-the-energy-transition/.

[9] Energetics, "Why Australia is not on track to achieve a 43% emissions reduction by 2030", 2024. https://www.energetics.com.au/insights/thought-leadership/why-australia-is-not-on-track-to-achieve-a-43-emissions-reduction-by-2030.

[10] Daniel Mercer, "Australia will fall well short of 82 per cent renewable energy by 2030, analysts predict, as problems mount", *ABC*, August 2023. https://www.abc.net.au/news/2023-08-06/australia-likely-to-fall-short-of-82pc-renewable-energy-target/102689392.

[11] Paul Kelly, "Labor's energy target all miss and wind as turbine construction slumps", *The Australian*, July 2025. https://www.theaustralian.com.au/nation/politics/turbine-construction-slump-labors-energy-target-all-miss-and-wind/news-story/96909d29b83b5aa80287b46c6cff6c0c.

[12] Clean Energy Council. 2025. 'Quarterly investment report: Large-scale renewable generation and storage'. p 11. https://cleanenergycouncil.org.au/getmedia/8f050d63-3955-483a-8934-8fd8b0cfd4f7/cec_renewable-projects-quarterly-report_q1-2025.pdf; Clean Energy Council. 2022. 'Renewable Projects Quarterly Report'. p 4. https://cleanenergycouncil.org.au/cec/media/background/resources/cec-renewable-projects-quarterly-report-q4-2022.pdf.

[13] Jay Rutovitz, Elianor Gerrard, Helen Lara, and Chris Briggs, "The Australian Electricity Workforce for the 2024 Integrated System Plan: Projections to 2050", RACE for 2030. https://racefor2030.com.au/project/australian-electricity-workforce-for-the-2024-integrated-system-plan/.

[14] Ibid., p. 3.

[15] OpenElectricity. https://explore.openelectricity.org.au/. Accessed 30 September 2025.

[16] Energy Minister Debate on 10th April 2025 at the National Press Club.

[17] Independent Expert Advisory Panel for Energy Transition. 2024. 'Hills of Gold Wind Farm Proposal Advice on energy production cost impacts under turbine configuration scenarios'. https://www.ipcn.nsw.gov.au/sites/default/files/pac/projects/2023/12/hills-of-gold-wind-farm/additional-case-material-available-for-public-submission/attachment-d--ieapet-advice.pdf.

[18] Parkinson, Giles. 2025. 'Australia may need twice as many big batteries to make up for lost wind'. *RenewEconomy*. https://reneweconomy.com.au/australia-may-need-twice-as-many-big-batteries-to-make-up-for-lost-wind/.

[19] Parliament of New South Wales. *Budget Estimates – Portfolio Committee No. 7 – Planning and Environment. 29 August 2025 (Uncorrected Transcript).* p.15.

[20] Mountain, Bruce. 2025. 'Bruce Mountain: Household electricity bills will go up by about 50 per cent under the Allan government's plan'. *Herald Sun*. https://www.heraldsun.com.au/news/opinion/bruce-mountain-household-electricity-bills-will-go-up-by-about-50-per-cent-under-the-allan-governments-plan/news-story/4f5c2ac54cc1ccea7f1913bac76508b6.

[21] Warracknabeal Energy Park. 2025. *Environment Effects Statement – Chapter 2 – Project rationale*. p. 5.

[22] Ibid. p. 9

[23] Transgrid. 2025. 'Meeting system strength requirements in NSW'. https://www.transgrid.com.au/projects-innovation/meeting-system-strength-requirements-in-nsw/.