

Submission  
No 89

**INQUIRY INTO FEASIBILITY OF UNDERGROUNDING  
THE TRANSMISSION INFRASTRUCTURE FOR  
RENEWABLE ENERGY PROJECTS**

**Organisation:** EnergyAustralia

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**EnergyAustralia**  
LIGHT THE WAY

The Hon Emily Suvaal MLC  
Chair  
Standing Committee on State Development  
Legislative Council  
Parliament of New South Wales  
Macquarie Street  
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Dear Ms Suvaal,

**Inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects.**

EnergyAustralia welcomes the opportunity to contribute to the Legislative Council's inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects.

EnergyAustralia is one of Australia's largest energy companies, providing gas and electricity to 2.5 million household and business customer accounts across Eastern Australia. EnergyAustralia controls over 5,000 MW of electricity generation capacity, including around 850 MW of renewable energy and 80 MWh of grid scale batteries across the National Electricity Market (NEM).

In NSW, we sell electricity to approximately 1.4 million retail customer accounts and have approximately 2,400MW of generation within the state. Key thermal generation assets include the Mt Piper power station at Lithgow which is NSW's newest and most efficient coal fired generator, and the Tallawarra gas fired power station on the shores of Lake Illawarra.

We have the most advanced project in NSW to back-fill part of the firm generation supply gap that will be left by the recent exit of the Liddell coal fired power station. This is our Tallawarra B power station which on track to provide an additional 316MW into the NEM by the end of the year, in time for the summer peak demand. EnergyAustralia is a leading player in the NSW renewable energy sector, having contracted approximately 150MW of large scale solar and 450MW of wind generation within NSW to supply our customers with renewable energy.

Affordable and reliable energy is important for all New South Wales consumers and vital to ensure the state's strong economic performance can continue. EnergyAustralia recognises the emissions reduction targets of the NSW Government, and we are committed to playing our part in the delivery of the NSW Government's *Electricity Infrastructure Roadmap*.

Providing reliable, affordable and clean energy to our customers is our focus. This task will not be easy – the reality is the scale and speed of the energy transformation is challenging to deliver. However, the move to renewable energy would be further complicated by internationally unprecedented changes to construction methodologies for transmission infrastructure leading to widespread and systematic adoption of underground HVAC for new transmission.

Recent assessments of the front-loaded cost of the renewable energy transition, including those done by Australia Energy Market Operator (AEMO), suggest that this investment figure is in excess of \$320 billion<sup>1</sup>. This figure does not factor in the additional cost of undergrounding new transmission infrastructure.

Indeed, the undergrounding of the hundreds of kilometres of new transmission lines needed to connect new renewable energy projects into the National Electricity Market would be challenging from an affordability, reliability, community and sustainability perspective. AEMO's *Draft 2023 Transmissions Expansion Options Report* suggests that "the costs of underground cables are approximately four to 20 times higher than overhead wires", and that "HVAC underground cable is only suited to route lengths below 50km" in the absence of detailed technical studies that would likely further increase costs materially.

Given our significant customer base in NSW, EnergyAustralia is concerned that the increased capital cost associated with the undergrounding of transmission infrastructure will inevitably lead to higher energy prices for customers, as these costs are passed through, in addition to the expected price rises as a result of the transformation of the energy system. Additionally, we have received advice in connection with some of our portfolio development projects that that lead time for High Voltage specialist cable is significant and can add almost a year to project delivery times even for very short runs. At a time when NSW needs to be accelerating the delivery of renewable energy infrastructure, this would have the opposite effect.

EnergyAustralia is currently completing feasibility studies into a pumped hydro power station at Lake Lyell near Lithgow, as well as a battery energy storage system near our Mt Piper power station. Both of these renewable energy projects are proposed at locations where access to existing transmission infrastructure is already in place. A focus on the co-location of new renewable energy projects close to existing transmission infrastructure is logical, however the geographical and capacity limitations of the existing transmission networks ultimately will require augmentation and new construction of transmission assets.

We have noted the absence of social licence considerations from the Inquiry's Terms of Reference. We believe it is important for inquiries such as this to consider this crucial part of project delivery. Working with landowners and local communities is essential. We believe there may be an argument in support of the undergrounding of transmission infrastructure in certain limited circumstances. However, regarding consumer cost consequences this should be considered on an 'as needs' basis in response to specific sensitivities.

EnergyAustralia suggests that there are a number of other practical options to consider regarding transmission infrastructure before undergrounding becomes the preferred option. Serious consideration should be given to better route selection for overhead transmission lines, increasing the transfer capacity on existing transmission lines and easements, and replacing lower voltage and rated transmission lines with higher capacity lines, as has already been initiated in some specific cases by Transgrid.

For further information, please contact David Wilson, Government and Stakeholder Lead (NSW), on \_\_\_\_\_ or at \_\_\_\_\_

Yours sincerely ✓

**Rebecca Kardos**  
**Strategy and Corporate Affairs Executive**

<sup>1</sup> [What does Australia's energy transition look like? \(afr.com\)](https://www.afr.com/policy/energy-and-climate/why-it-will-cost-320b-to-ditch-coal-in-three-maps-and-a-chart-20220608-p5as3t) - <https://www.afr.com/policy/energy-and-climate/why-it-will-cost-320b-to-ditch-coal-in-three-maps-and-a-chart-20220608-p5as3t>