

**Submission  
No 3**

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

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## To the Select Committee on the Feasibility of Undergrounding the Transmission Infrastructure for Renewable Energy Projects

I write with regard to the Feasibility of Undergrounding the Transmission Infrastructure for Renewable Energy Projects, specifically the Humelink Project which traverses my electorate of Goulburn.

It is clear from the recently published EIS, beginning with the Strategic Context and Project need that the proponents have never genuinely considered the project being undergrounded and only have conducted meagre and inadequate investigations to appease the requirements for the EIS.

In their own words; Humelink is being developed because “the national energy grid needs to evolve”, yet their EIS demonstrates the proponent pushing through outdated and dangerous infrastructure in the name of fast-tracking. In 2023, the risky and archaic infrastructure of overhead powerlines is not moving in the right direction for the future in terms of social license and security of electricity supply in NSW. Compared with undergrounding, the proposed Humelink towers are inefficient, leak energy, interfere with agriculture and emergency response, require significant ongoing maintenance and are prone to blackouts.

My objections surround the economic impact and hindrance the overground towers will have on tourism and agriculture across the communities they dissect, as well as the environmental impacts of the enormous transmission lines. I also will emphasise the failure of the proponents to genuinely seek and understand the feedback from the communities which will be most impacted as well as the failure of the EIS to fairly assess and detail the impact overground transmission lines have on agriculture, tourism and emergency response.

This is an EIS based on contextual planning which preceded all major events that have impacted NSW in the last 4 years. From the 19-20 bushfires, COVID-19 and the subsequent exodus of Sydney to regional NSW, the floods in our regions and the impact of inflation without due consideration.

Overhead transmission infrastructure will destroy the regional areas that are desirable places for lifestyle farmers – a growth sector for the regional economies located two to three hours from major cities. Lifestyle farmers have invigorated and brought prosperity to many businesses locally, and by declining to consider the agriculturally sensitive solution of undergrounding, this important economic stimulus will be curtailed.

In section 2.4 Regional Context the EIS references the Draft South East and Tablelands Regional Plan, specifically, Objective 12: Promote a year-round visitor economy. Further explanation is needed on exactly how these enormous powerlines - spiderwebbing the countryside will promote tourism beyond the possibility that during construction, employees will not retire to their on-site

accommodation but instead undertake sightseeing activities. The EIS fails to provide consideration or mention of how the proposed lines will impact almost every other objective in the Draft South East and Tablelands Regional Plan negatively. It is clear that the proponent has referenced one element, that is not even remotely significant, to relate it to the project as a box-checking exercise.

I strongly believe that tourism will be significantly, and negatively impacted as a result of the towers. As a major growth industry for regional NSW, with the number of visitors increasing 41% from 2014 to 2019 and expenditure of \$14.3 billion in 2019, our visitors are drawn to Sydney and then the surrounds for natural landscapes, famous food, wine and beverages. But HumeLink proposes to carve up one of the drawcards unique for our visitors to regions. Consideration and explanation needs to be given as to how overground towers will harm tourism.

While TransGrid advise that they are giving consideration to the visual impact of the project in investigating methods such as screening, reducing visual impact by placing towers below ridge lines and certain matte paints that reduce the glare of the towers and tower designs, they have failed to genuinely consider the financial burdens of these works and changes. The simplest solution is also the more feasible and future focussed undergrounding of the lines.

It is without a doubt that overhead transmission infrastructure conflicts with agriculture. Detailed in the EIS, of the 8,552.4 ha of the project's footprint, 5,652.9ha is RU1 Primary Production zoned, 1,416.2 RU2 Rural Landscape and 1,091.4 RU3 Forestry. Accounting for 96.7% of the footprint of the project, the EIS claims that the impact will be small compared to the relative 1.6 million ha across the project's study area - they failed to expand the study area even further to reduce the impact even more. This is a farcical demonstration of how the project is fixing the numbers for the purpose of their report.

Losses of productive efficiency to the agricultural land impacted are detailed across a meagre nine paragraphs in the EIS. Including but not limited to:

- Risk of collision of wide or high farming equipment, resulting in manual modification of cultivation, sowing and spraying patterns and impacts to harvesting, unloading and loading grain
- Impacts on GPS interference in cropping automation and planning
- Impacts on irrigated crops, pasture or horticulture enterprises
- Risk of collision during any use of aircraft, helicopters or drones including aerial spreading of fertilisers, aerial pest spraying and, importantly, emergency response
- Impacts from EMF on farm equipment, machinery and electric fences
- Removal of any forestry operations within the project footprint

Modern farming practices are increasingly relying on new technologies like drones and precision agriculture tools to improve productive efficiency. These technologies can't be utilised and many

other activities, like aerial operations and irrigation, can't be performed in close proximity to overhead transmission lines. It's important that these losses and the productive efficiency of every individual affected agricultural operation are taken into account within the footprint of the project, not just in relation to the entire area Transgrid has elected to study.

The total 5,714 hectares of the footprint will include clear-felling areas of native forests and bushland with serious impacts on habitat, greenhouse gases and global warming through large-scale, lasting, land clearing.

With the State of the Environment report highlighting that the number of threatened plant and animal species has risen, and with further extinction of Australian species expected, it is critical all large, high-impact infrastructure projects in NSW must minimise destructive, permanent, environmental impact. In its current form, the Humelink Tower proposal will devastate and intersect habitats for more than 80 threatened or endangered species of flora and fauna. At the same time, undergrounding provides a far less destructive alternative.

The fragmentation of wildlife corridors that will occur from the current proposal, including vegetation clearance in established bio-links, will reduce the biodiversity of flora and fauna, which must be combined with the already existing pressures on vulnerable species through damage caused by feral animals.

The clear-felling of land along the 360-metre-long, 70-metre-wide corridor of the Transgrid preferred route directly conflicts with decades of scientific research demonstrating that vegetation clearance directly contributes to a warming and changing climate. As does the manufacture of carbon-intensive construction materials, such as concrete and steel, which will be used to build Humelink.

Importantly the project in its current form with towers, represent a real and present danger by increasing the region's risk of bushfire. Overhead powerline faults have been reported to be the cause of almost 5% of all rural fires in Australia, as per the Black Summer fires of 2019-20, which caused so much devastation in my electorate. Detailed in their own EIS, electrical infrastructure accidents can be a risk for starting fires, but the EIS failed to detail the impacts that the infrastructure has on emergency response capabilities and the possibility of reducing the impact of fire.

There is overwhelming evidence that overhead electricity transmission lines increase the risks of tragic loss of life and property in bushfire-prone areas, as well as impede the efforts of firefighters to contain them. These risks can be completely eliminated with the adoption of undergrounding. Humelink's proposed infrastructure will present bushfire risks for the life of the structure, which will be some 80 years – potentially resulting in multiple billions in tangible and intangible costs.

Extrapolating a Deloitte Access Economics costing, a fire of the scale of Black Summer is estimated to have a cost \$230 billion

Furthermore, the submission fails to discuss the deadly phenomenon known as arcing, caused by overhead transmission lines that shoot high volumes of electricity to the earth like lightning. Arcing poses severe risks to life, and spreads bushfires rapidly into areas that may otherwise be unaffected.

Not only did the EIS fail to comprehensively acknowledge that this project increases the risk of bushfires, but it also failed to explicitly discuss how overhead transmission lines greatly affect and reduce emergency response capabilities by impeding firefighting efforts on the ground and in the air, due to the safety exclusion zones under, around and above the lines due to the deadly risk of arcing.

These risks are exacerbated in many areas where dangerous transmission lines already exist. When coupled with the new HumeLink towers in bushfire events they will form deadly electrified prisons, trapping property owners, and rendering fire fighters helpless to save them.

It is common knowledge that high voltage transmission lines effectively stop the management of bushfires in the vicinity because the space over and under powerlines are no go zones for firefighters. For this reason, many of the dams that have been used to refill aerial firefighting fleet in Southern NSW are also not accessible for fire control and this situation will be made far worse with current HumeLink proposal.

Transgrid's own assessment identified "a high degree of bushfire risk along parts of the route" for HumeLink. De-energising lies around Transgrid's "safety" response in bushfires Transgrid swears black and blue that they were responsive to safety concerns in Black Summer Fires, but on the ground evidence details calls from the fireground to switch off transmission lines being denied despite the risk to life and property. The reported 65 outages and/or arcs on the existing infrastructure proves the infrastructure was not only live, but with undergrounding those outages would not occur.

Yet, Transgrid's own experts have told the community that they wouldn't switch off the lines because they provided electricity to the cities on the eastern seaboard. In a bushfire workshop, Transgrid's own expert admitted that he, as a TransGrid employee on the ground in a safety role, was unable to get them turned off because they serve the city. Transgrid's own expert stated that even if the lines were switched off, they would be deenergised, which means they retain some residual energy in the lines, and still pose a safety threat. Further, the expert stated that:

- if one set of lines is de-energised, and follows parallel to other lines, there could be power transfer between them, and the de-energised line could become re-energised.
- there is an area at each end of a "section" that can be tested to make sure the power is no longer live, but this process takes a long time.

If these assets were underground, they would be protected from any outage caused by a bushfire or extreme weather event, therefore not only protecting communities in the next fire event but also protecting the asset itself and keeping the lights on.

The final aspect to consider in relation to bushfire and the HumeLink EIS is that these elements of the infrastructure create another potential source of carbon emissions failed to be detailed in the EIS. Assessments of the damaging 2019-20 summer bushfires suggest a preliminary estimate of net emissions of around 830 million tonnes of carbon dioxide equivalent (MtCO<sub>2</sub>-e). Failing to reduce the impact, the fires are estimated to have burnt an average of around 20 per cent of the above-ground biomass and debris, resulting in average emissions of around 130 tonnes of CO<sub>2</sub>-e per hectare of forest burnt, alongside decimating wildlife populations, with the Black Summer estimated to have killed almost 3 billion koala, kangaroos and other animals.

Governments overseas and private companies in Australia have come to the conclusion that when you take into account all the non-market costs of overhead transmission lines (bushfires, biodiversity, visual amenity, regional development, tourism, and agricultural productivity) for the next 80-100 years, undergrounding is the preferred option.

I understand that the costs of these projects are paid by electricity consumers so we need to be realistic about balancing impacts and costs. But as a part of regional communities, we need to be appropriately engaged and listened to, as well as compensated for the loss. The EIS demonstrates that the only beneficiary of HumeLink is the foreign-owned Transgrid which will see a 40% jump in revenue, but they claim that undergrounding will cost consumers too much.

Despite the options report commissioned by Transgrid through GHD detailing the following:

“The undergrounding route options presented are outcomes of a limited desk top study that utilises a geospatial constraint analysis tool. Refining this assessment through more detailed site and field investigations including community, environmental and engineering perspectives would determine the extent of constraints including constructability. Whether a detailed route options study could result in a shorter or longer route outcome is purely speculative. If a shorter route with easier terrain and less clearing can be identified through further analysis, the cost of undergrounding is expected to be lower than presented in this report. .... The study has explored viable technical options however as a concept study the costing and delivery timing will have a high level of variability. Market testing is required to provide more certainty around these variables.”

They concluded that it would be unfeasible to investigate further.

The other factor TransGrid deems making undergrounding unfeasible is the time it will take to underground the cables along HumeLink, hence not complying with AEMO's determination to accelerate the project. Project acceleration or “fast tracking” transmission infrastructure will, and has, come at a critical cost to landowners and the environment across Australia. By not planning for better

long-term and future outcomes the system is increasing pressure on landholders and saturation of impacts of renewable energy projects.

One consideration for the opportunity of routing underground cables is to locate them within or near existing overhead line easements, providing numerous significant benefits with far less need for any additional underground cable easement, far less objections from landowners, no objections from neighbours or local communities, minimal additional environmental impact after construction as well as minimal if any biodiversity offset and easement purchase costs. As I understand for HumeLink such costs are estimated to be well over \$1 billion, separated as: \$930 million for biodiversity offsets, \$90 million for easement purchase (likely to be understated), \$180 million for the additional payment of \$200,000 per kilometre (though this payment may still be appropriate compensation for landowners). Considering this, with the 'combined' maintenance savings, fewer additional access tracks of course, it would not be practical to install underground cables along some sections of line, but it would be for significant distances.

Undergrounding transmission eliminates the risk of interruption to power transmission in severe weather events and/or bushfires and therefore improves transmission security and resilience as required under the SLACIP Act. This is an important benefit where 500kV double circuit lines parallel existing 220kV or 330kV lines, as is the case with HumeLink. By diversifying the installation method, undergrounding rather than overhead, system security, as required under the SLACIP Act, is improved. Additionally, the maintenance of underground cables is limited to driving the route, every few weeks at most, whereas overhead lines require tower inspections, earthing checks/measurements, corrosion treatment for towers, cleaning insulators, replacing broken insulators, etc.

The global move to undergrounding to reduce risks, Government investigations and inquiries in Australia and around the world, recognise that one of the most effective ways to reduce the risks from powerlines is taking them underground. The long-term cost benefits of undergrounding are clear and well documented, along with better social and environmental outcomes for NSW.

I firmly believe, that this EIS truly demonstrates how TransGrid have also failed to consult with my communities in an altruistic manner. Many of the affected landowners have, at their own expense, taken time to invest in undergrounding reporting and provided options which they have presented to TransGrid only to feel that their questions or concerns are ignored or responded to with a lack of integrity, proper investigation, and a "standardised" approach. Landholders within the proposed corridor have insurmountable local knowledge that should not be underestimated.

I support the call for Transgrid to undertake genuine, transparent, and inclusive consultation with local communities and affected landholders when it comes to planning transmission infrastructure. Regional communities cannot and should not be taken for granted. Farms are businesses, businesses which feed and clothe our nation. If the infrastructure needs to be built on private land, it must be done in a way that minimises the impacts, and does not sterilise the most productive land, compensation must be appropriate.

TransGrid at that time had identified a 1-kilometre-wide corridor of investigation that ran north of Tarlo River National Park, curving eastward and then turning south into the Bannaby substation. The affected landowners rightfully argued that HumeLink should simply follow existing power lines that cut through the national park. But these calls were ignored and instead, we were advised that the NSW Department of Planning rules required it to identify alternative routes that avoided national parks and minimised environmental impacts, despite the existing lines being built before a national park was declared.

In December 2022 when TransGrid released their final route, the least preferred option within the community and accompanied by no real explanation other than a statement saying the environmental effects would be less. Again, I reiterate, it would be more feasible and less intrusive on our environment to follow the existing easement.

Transgrid, a foreign-owned company, should not be the determiner of the future of transmission infrastructure standards as we transition to renewables. They are not focussed on the long-term, permanent, costs of this project for the communities and the environment of NSW.

In making these decisions it is critical that the “source of truth” around the costs is not only based on the views of the proponent, but other experts and real-world examples.

Furthermore, it is critical that the wider costs be considered fully when looking at the options such as environment, fire impacts and future generations. As part of the NSW government environmental planning approval process, it must be demonstrated that no other feasible options with lesser impact are available. Clearly undergrounding HumeLink is a feasible option with less social, environmental impact and should be the recommendation of the Government.

Late last year, the NSW Government fronted the media at Barangaroo to announce the enforcement of the height limit of 35m on a new residential tower, rather than 73m as proposed, to ensure Sydney was liveable, workable and beautiful for now and future generations. At the same time the regions face the irony that this is exactly what the HumeLink project will be taking from the regions – our liveable, workable and beautiful environment, with the proposed transmission lines eroding visual amenity, disrupting agricultural production and polluting landscapes.

Kind Regards,

Wendy Tuckerman MP

Member for Goulburn