

**Submission
No 267**

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

Name: David J. and Kerry A. Campbell

Date Received: 2 August 2023

The Hon Emily Suvaal, Committee Chair
Inquiry--Feasibility of undergrounding the transmission infrastructure
for renewable energy projects
Standing Committee on State Development
Parliament House
6 Macquarie Street
SYDNEY NSW 2000

Dear Hon Emily Suvaal,

Re. above Inquiry,

We David J. and Kerry A. Campbell being Australian Citizens living in rural NSW protest most vehemently that any future electricity transmission lines must be installed underground, as is being done in other developed countries, worldwide. We must use the most up to date technology to do this, regardless of financial cost.

We consider this our duty to future generations.

We must preserve the beauty of landscape, not destroy it with industrial development.

Wildlife, especially birds, are severely threatened by overheard transmission lines. Human health, too, it is suspected, can be damaged by living too near the huge monstrosities-- overhead powerlines.

The accepted reality of fire, BUSHFIRE, caused by electrical infrastructure, is, alone, reason enough to underground new transmission lines. With Climate change heating our summers we must not allow any risk

to exist when it can be avoided. The loss of life and, too, of livelihoods is way more important to avoid, than cost. The environmental and agricultural damage caused by bushfires and disruption to peoples lives is difficult to comprehend, physically, financially and emotionally...everything to avoid such disasters must be used. The release of carbon dioxide into the atmosphere by bushfires is immeasurable, not a helpful thing when we are trying to bring down our emissions!!

We enclose a copy of submission by HumeLink. We concur with what is stated in this submission.

We do not want to be remembered by future Australians as the ones who did too little to protect and nurture our precious land.

Yours faithfully and in hope,

HumeLink Alliance Inc. – June 13, 2023

HumeLink – a 360 km, 500kV overhead transmission line

Undergrounding HumeLink

- A. Underground transmission is assessed as having the highest net benefit overseas**
- A recent paper by the National Parks Association (NPA)** states that 'almost all new transmission links are underground throughout Europe, in fact are mandated in some countries, and much of Asia.', *Going underground with the transmission connection for Snowy 2.0*, NPA, January 2021, p5.
 - Engineers are telling us** that there have been major advances in underground cabling technology, it is entirely feasible and the world is looking on in disbelief as Australia builds more overhead transmission lines.
 - Transgrid talk about a social licence.** It's time for a realisation in the National Electricity Market (NEM) that with new transmission, the cost of the social licence, is the cost of undergrounding.
 - Governments overseas have come to the conclusion, that when you take into account all the environmental costs of overhead transmission lines, undergrounding has the highest net benefit.
 - In July 2021 California announced it will bury 10,000 miles of overhead power lines to reduce the risk of wildfires, at a cost of between \$15 to \$30 billion. When asked about the cost the CEO said "It's too expensive not to do it. Lives are on the line,"
<https://www.npr.org/2021/07/21/1019058925/utility-bury-power-lines-wildfires-california>
- B. Private Companies** - In Australia private companies are putting transmission underground. Two current projects Mariner Link and Star of the South, being undertaken by private companies, are putting transmission underground. Mariner Link, the new interconnector between Tasmania and Victoria, and the first investment for Rewiring the Nation, has 90 km underground. Star of the South, Australia's first off shore wind farm, off the coast of Victoria with 2200MW of capacity – more capacity than Snowy 2.0, will have 60-80 km underground.
- C. Bushfires** – Overhead transmission lines increase the danger of bushfires. On days of extreme fire danger, the percentage of fires linked to electrical infrastructure assets rises dramatically. Also transmission lines seriously hinder bushfire aerial and ground control. The cost of the recent 2019-20 Black Summer bushfires has been estimated at \$230 billion, with almost 3 billion animals killed or displaced.
- D. Visual Impact** - The HumeLink towers will have a massive visual impact
- The National Parks Association (NPA) states '*500 kV lines are the tallest, bulkiest, and most imposing of all transmission lines in Australia, completely dominating the landscape for tens of kilometres...*
 - The problem is the height of the towers relative to the trees in the landscape. In many regions trees are 15-20m. The towers can be 80 metres – 4 times the height of trees.
 - Towers: > 330kV tower visually permeable; and
> 500kV visually dense, tall, narrow structure with 3 large visually prominent crossarms.
 - Lines >330kV lines at one level; and
> 500kV lines at three levels.
- As the towers on the 330kV line and the 500kV line have contrasting forms, there will be more interruption to view. The cumulative negative impacts on the landscape of the two towers running side by side will be excessive.

E. Biodiversity – Overhead transmission lines have significant impacts on biodiversity that can be substantially reduced with undergrounding. The referral to the Environment Protection and Biodiversity Conservation Act (EPBC Act) states HumeLink has an action area of 48,332 ha and will significantly impact Matters of National Environmental Significance including 82 threatened species and six threatened ecological communities. Initial assessments identify that 1862 ha of critically endangered woodland will be directly impacted.

F. Losses – Studies indicate that HVDC underground cables have less transmission losses than AC overhead lines and so will have offsetting operational benefits over the life of the project.

G. Advantages with undergrounding - There are significant benefits of undergrounding transmission as follows:

- Eliminates the risk of overhead lines causing bushfire;
- Eliminates air and ground fire control hazards;
- 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;
- Minimal impact to private or public land after construction is complete;
- No overhead lines impeding agricultural operations, machinery use, irrigation, or aircraft operation;
- No visual impact from the transmission lines;
- Less transmission losses with HVDC;
- Little to no electromagnetic field impacts; and
- A much-reduced easement size, with the possibility to horizontal directional drill sections, and therefore considerably lower biodiversity impacts.

H. Problems with the evaluation process

- a. Flawed NEM Rules** – Andrew Dyer, the Australian Energy Infrastructure Commissioner says the NEM Rules are 'not fit for purpose'. The Integrated System Plan (ISP) and the RIT-T don't take into account all the environmental costs (the visual impact, increased risk of bushfires, noise, impacts on neighbouring agricultural operations, impacts on health from EMF, etc.). As a result, the nation is left with energy projects that are highly damaging to the environment. The balance between the environment and essential infrastructure is lost. Projects aren't developed in environmentally sensitive ways such as undergrounding transmission.
- b. HumeLink has a net cost.** In the Project Assessment Conclusions Report, HumeLink was assessed as having a net benefit of \$39m (excluding competition benefits). This is a tiny net benefit for a \$3.3 billion project, before environmental and community costs. Further this net benefit was estimated assuming that Snowy 2.0 would be operating from July 2025, when it's now delayed until at least December 2029, and using the wrong per annum Opex assumption of 0.5% of Capex, when AEMO assumes 1% in the ISP and Transgrid's five year average is 3.5%. Correcting for these errors, HumeLink will have a net cost, before environmental and community costs.

F. Conclusion

Underground cables cost more to construct than overhead transmission lines but there are significant and enduring offsetting non-market benefits to the environment and communities. The construction is a one off. The benefits to the environment and communities last for generations – 80 to 100 years. HumeLink as an overhead transmission line will industrialise landscapes of great natural beauty for almost a century. This is not cheap electricity. There are huge costs to the environment and communities with overhead lines.

We support the move to renewables. We care passionately about the environment. As we transition to net zero emissions to save the planet from global warming, we can't at the same time destroy our country with overhead transmission lines. We need environmentally responsible transmission as well as generation. Countries overseas have come to the conclusion that undergrounding transmission is the environmentally responsible solution.