

Submission
No 240

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

Organisation: Humelink Action Group

Date Received: 14 July 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

14 July 2023

Dear Committee Members,

Thank you for the opportunity to make a submission to this inquiry on behalf of the HumeLink Action group.

The recommendations you make with regard to undergrounding of transmission infrastructure have the potential to save lives by significantly reducing the risk of deadly bushfires in our fire-prone region that is still recovering from the impact of the Black Summer Fires of 2019/20.

Our comments largely relate to the costs and benefits of undergrounding and impacts to the environment as set out in the Terms of Reference, with a focus on the bushfire risks presented by overhead transmission and how this will be solved by undergrounding.

Executive summary

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 cost \$230 billion.

This submission discusses:

- The Government inquiries into major bushfires in NSW, Victoria, Western Australia and the United States that have all attributed bushfire ignitions to power lines.
- The deadly phenomenon known as arcing is caused by overhead transmission lines and shoots 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.
- How transmission lines also impede firefighting efforts on the ground and in the air, due to the safety exclusion zones under, around and above the lines due to deadly arcing.
- How in the case of HumeLink, 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 firefighter fighters helpless to save them.

- How Bushfires caused by overhead transmission lines also decimate wildlife populations, with the Black Summer estimated to have killed almost 3 billion koala, kangaroos and other animals.
- Transgrid's own assessment identified "a high degree of bushfire risk along parts of the route" for HumeLink

Introduction

With a panel of climate experts warning that Australia is in "uncharted territory" and staring down the barrel of a "dramatic bushfire season" after three years of La Nina and a strong El Nino event developing, it is critical that decisions made by Governments do everything possible to remove bushfire threats.

The Federal Minister for Climate Change and Energy, Chris Bowen, in his Annual Climate Change Statement to Parliament on 1 December 2022 stated: "Our country was devastated by the Black Summer bushfires just a few years ago. But as frightening as that bushfire season was, the absence of action will see the temperatures and conditions of that year become the norm by the 2040s and become a "good year" by the 2060s."

Having lived through the devastating Black Summer bushfires, leading teams of volunteer fire fighters as a local NSW Rural Fire Service (RFS) Captain, I have seen the devastation caused by overhead transmission lines first hand, including terrifying arcing activity. I have witnessed the rapid spread of spot fires caused by arcing during fires, and the resulting risk to human life, wildlife and property directly caused by these structures. One flash and your ash!

I am personally very concerned for the safety of our community and future firefighters in an environment dominated by these massive and deadly structures, and fearful of the unnecessary risk that HumeLink will create for our already fire-prone region.

Bushfire risks associated with overhead powerlines are well acknowledged in Australia and around the globe, seeing tens of thousands of kilometres of cable being moved underground, including in California where PG&E is undertaking a major project to bury its distribution and transmission lines.

As the company's chief executive Patti Poppe says: "It's too expensive not to do it. Lives are on the line!"

Hopefully, this message will resonate in Macquarie Street and Canberra, as we make life and death decisions about the future of our multi-billion dollar transmission infrastructure in the best interests of the community and the environment. We understand that these projects go through a risk assessment process, though surely there cannot be any acceptable risk when lives are concerned.

Fire risks from overhead transmission lines



Over our history, there are many examples where devastating bushfires have been started as a result of overhead transmission lines, with research suggesting that [up to 50 per cent of major fires are ignited by faults in energy networks when weather conditions elevate fire risk](#).

Government inquiries into major fires have found overhead power lines are likely to have caused larger, damaging fires.

[A NSW inquiry into the 2019-20 Black Summer bushfires, noted that NSW RFS believed power lines were a suspected cause of a few of the larger, damaging fires \(page 29\)](#). The Black Summer Fires burned more than 24 million hectares of land and took the lives, directly and indirectly, of more than 450 people across the country.

Likewise, an investigation into four emergency-level fires in Western Australia, found two were the result of overhead transmission lines, and the 2009 Victorian Bushfire Royal Commission found that the state had suffered a long history of electricity assets causing bushfires, including five of the 11 major fires of the Black Saturday bushfires which killed 173 people, injured 414 people and scorched 450,000 hectares of land.

Similarly, above ground electricity lines caused the 2013 Blue Mountains bushfires that engulfed Winmalee and Springwood, razing 194 homes; and California's second largest wildfire in history, the 2021 Dixie Fire, which burned 389,837 hectares before being contained, was sparked by energy infrastructure.

As recent as six months ago, I attended two more fires in our region, one of which was attributed to overhead wires, and another fire that HumeLink would have blocked us from fighting if it had been built in our path.

It is alarming to me that we are having to prosecute this argument at all given that one of the suggestions handed down by Transgrid's own independent review by Dr Brendan Nelson, was that Transgrid put HumeLink underground to reduce risks in bushfire prone areas. Dr Nelson also shared that there were 65 outages caused by arcing and flashovers in the Black Summer Fires, yet Transgrid continues to move forward with their life endangering overhead plan while communities are left in fear.

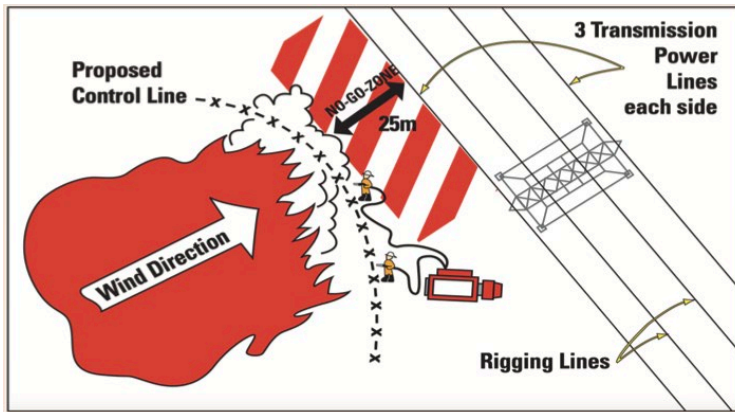
Hampering fire fighting

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.



These issues are well documented in the NSW Rural Fire Service Pocketbook which notes that the area 25 metres from the outer wire is a no-go-zone for vehicles and personnel if fire or smoke is approaching a transmission line. These rules are based on the fact that extra conductivity in the air caused by flame and smoke may shoot a deadly arc from one wire to another, or to the ground.



In fact, the Pocket Book (pictured), dedicates eight pages to safety instructions and impediments to fighting fires around electricity assets, stating the areas under transmission lines are a “no go zone for vehicles and personnel if fire or smoke within 25 metres of outer wire”.

Southern California Edison Fire Management practices

recommends the minimum safe distance to powerlines involved in a wildland fire is 1 1/2 times the height of the pole or tower. If this was adopted in NSW, this would make the no go zone some 125 metres either side of the proposed overhead HumeLink transmission line.

These serious issues that the proposed HumeLink towers would create for firefighters was brought home earlier this year when I was called out to a fire in the area as the local RFS bridge Captain. This fire was directly in the path of the proposed HumeLink route and we would not have been able to fight it safely if the towers had been constructed. This would have resulted in significant risks to lives and damage to property including nearby valuable timber plantations and associated jobs.

Coincidentally this fire was on the same day the Stop, Rethink HumeLink campaign released its [Bushfire report](#) which detailed many of these issues. I urge the Committee to read this report (which I have attached) and understand its significance.

No way out

Many people in our community are anxious about not being able to get out of their properties in the event of bushfires if the proposed HumeLink towers go ahead because they will be trapped by a deadly electrified wall where smoke and fire envelopes, which also prevents them being rescued by firefighters.

The scenario of people trapped between an advancing bushfire and the HumeLink wall is real.

High Voltage powerlines are no go zones for firefighters, and a very real risk to people trying to evacuate from a bushfire.

Landowners who already have smaller transmission lines on their properties know the dangers because they experienced the Black Summer bushfires, and suffered significant losses as a result of not being able to safely fight the fires, receiving no support from RFS, they were on their own. Some of these people now face a double whammy of having two or even three transmission lines through the middle of their properties, and multiple deadly electrified walls to deal with in a fire – a virtual prison.

It is also impossible to take low flying aircraft anywhere near a high voltage transmission lines, or any other vehicle under the lines once the air is filled with highly conductive smoke. Rescue is simply not possible.

During Black Summer, Andrea and Paul Sturgess’ property near Batlow was devastated in the Dunn’s Road fire, which saw 162 homes lost.

Like many others, Andrea and Paul were told they had to fend for themselves because of two existing overhead electricity transmission lines that crossed her property prevented land and air access by fire crews.

“We were told we were on our own because of the transmission lines,” said Andrea.

Now they face the prospect of a third, much bigger line, crossing the property if HumeLink is built overhead.

“There’s no way known we could defend our property in a fire if HumeLink goes ahead as planned,” said Andrea. “The State and Federal Governments, the electricity regulators and Transgrid needs to listen to our very real concerns and underground HumeLink. It’s the safest option for us and for our future generations.”

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 we know there were calls from the fireground to switch off transmission lines that were 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 de-energised, 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 it 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.

Recently in a Community Consultative Meeting, the community was told by Transgrid, that they would not advise any further on our bushfire risk, with de-energising being the only mitigation on the table. When asked “Does de-energising still pose a threat to human life?”, Transgrid’s answer was a resounding Yes!

We know during the Dunns Rd Fire that Transgrid wanted to reenergise lines where volunteer firefighters were working under and around them.

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

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.

Jurisdictions including [Germany](#) and California have legislated for undergrounding. In California in 2019, energy company PG&E started undergrounding transmission and distribution. They have implemented a plan to bury 10,000 miles of power lines and equipment in areas with high fire risk. PG&E's modelling shows burying lines reduces their risk of igniting wildfires by approximately 99 percent.

In Australia, private companies are already putting transmission underground and Internationally, there are numerous large-scale projects occurring around the world.

The financial, environmental and human costs of not going underground

The economic and human cost of bushfires is significant and likely to increase with global warming. This can be significantly reduced by undergrounding.

Deloitte Access Economics put the tangible and intangible costs of the Victoria Black Saturday bush fires at \$7.6 billion. By extrapolation, the cost of the 2019-20 Australian bush fire season, 'Black Summer', has been estimated at \$230 billion. The cost of undergrounding is insignificant in comparison. **And what cost is a life?**

Bushfires caused by overhead transmission lines also decimate wildlife populations, with the Black Summer' estimated to have killed almost 3 billion koala, kangaroos and other animals.

Apart from the obvious impacts of loss of life, wildlife and property, bushfires bring other human impacts that are often not taken into account such as trauma, anxiety and mental illness. For our volunteer and firefighting personnel to have another hazard to contend with that increases the risk they already put on themselves by bravely fighting fires, it is unconscionable to risk their lives further.

In addition, there have been recent cases of people, including young children, impacted by [poisonous smoke from bushfires, doing permanent damage to young children and babies](#).

Conclusion

The Humelink Action Group totally supports the need to move to renewable energy but this must be done in sustainable and safe way that does not put communities at extreme risk from wildfires in a warming climate.

The region impacted by Humelink is already prone to bushfires and recovering from the Black Summer of 2019/20. We should not be placed in further jeopardy by this dangerous proposal, as recommended by Transgrid's own independent review.

The long-term cost benefits of undergrounding are clear and well documented, along with better social and environmental outcomes for NSW.

Yours sincerely,

Bill Kingwill
HumeLink Action Group