

Submission
No 94

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

Organisation: Community Power Agency

Date Received: 13 July 2023

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TO: NSW Parliament
Macquarie Street Sydney NSW 2000
c/

RE Submission to Parliamentary Enquiry into the Feasibility of undergrounding the transmission infrastructure for renewable energy projects.

To Whom it May Concern,

On behalf of Community Power Agency, I thank the committee for the opportunity to make a submission into the Parliamentary Inquiry into the *Feasibility of undergrounding the transmission infrastructure for renewable energy projects*.

Community Power Agency has been working over the past decade to improve practice of the renewables industry in a number of ways including authoring a number of State and industry guidelines and training including:

- Clean Energy Council's *Guide to Benefit Sharing in Large-scale Renewable Energy Projects*
- *Victorian Community Engagement and Benefit Sharing in Renewable Energy Development A Guide for Renewable Energy Developers*
- Chairing the Social Evaluation Panel for ACT Government's Renewable Energy Auction
- Currently drafting the Tasmanian Guidelines for Community Engagement, Benefit Sharing and Local Procurement for large scale renewable energy development
- Professional Short Course -Socially Responsible Renewable Energy Development - CPA designed and taught the first professional development course on community engagement and benefit sharing specifically tailored to the renewable energy sector, with the Centre for Systems Innovation (Griffith University)

On the technical aspects of undergrounding versus overground transmission, Community Power Agency's research finds that global experience with undergrounding cables (particularly in Europe) indicates partial undergrounding can be a useful solution where lines pass close to dense population areas, or in some sections of a project where it may be warranted as a result of visual amenity or ecological factors. However, it is worth noting that in itself, underground cabling does not necessarily provide fewer ecological impacts.

Generally, it is the position of Community Power Agency that the feasibility of these decisions should aim to achieve the following:

- Minimal impact to the biodiversity values of the area
- Engage with local communities early and genuinely
- Achieve Australia's renewable energy targets within timeframes required to meet our Paris Agreement goals.

There may be circumstances where overhead transmission will be more appropriate than underground transmission and likewise circumstances where partial undergrounding will allow fewer impacts balanced with the cost to energy consumers. Crucially, to find the most

appropriate mix of underground and overhead transmission, requires transparency in the process for how these decisions are made.

It is Community Power Agency's primary concern, however, that communities likely to be impacted by transmission infrastructure be consulted early and meaningfully. This means clear and transparent information needs to be made available around options and decision-making processes. Participation and input from the wider community must be encouraged and facilitated early in the planning process to avoid social fall out, leading to delayed progress on renewable energy targets.

Furthermore, decisions around above or below ground cabling should incorporate a range of considerations, such as First Nations self-determination, fair pay for landholders hosting infrastructure, the conservation of biodiversity and avoidance of unnecessary environmental impacts. Transmission should also be delivered in ways that keep costs down for energy consumers.

Response to specific questions in the terms of reference

A) Costs and benefits of undergrounding

Overhead lines are comparatively easy to build and access for maintenance purposes. Undergrounding usually entails higher installation costs, given the variability of the terrain, the process and equipment required¹. AusNet has calculated the cost of undergrounding to be approximately 10 times the cost of installing overhead lines, and as RE-Alliance has summarised in Trust for Transmission Report (July, 2021), this does not take into account potential social costs².

Reliability is a key consideration. Internationally, Transmission Line Operators that operate underground cable networks report that outage times in case of failure are extended.

(b) Existing case studies and current projects regarding similar undergrounding of transmission lines in both domestic and international contexts,

In Australia Star of the South, AusNet (GREZ) and Marinus Link (Victoria based) have all explored undergrounding as an option. Overseas, in the European Union, the [Renewables Grid Initiative](#) has conducted research into underground projects.

(c) any impact on delivery timeframes of undergrounding

Reaching Australia's renewable energy targets, in order to minimise the dangerous impacts of climate change is an absolute necessity. However, this must be balanced with ample opportunity for the community to have a meaningful say in the planning process.

(d) any environmental impacts of undergrounding.

Of the two techniques used to install underground cabling, trenching results in the largest negative environmental impacts. Trenches need to be excavated for cable installation with access to the construction site needing to be cleared for heavy machinery. Construction works affect the environment; soil must be carefully removed and stored to prevent soil loss and erosion. The process may also cause soil compaction. Cabling limits the planting of deep rooted trees above it, but farming crops may be continued⁴

A consortium of ecologists and other biodiversity professionals is currently working together in the New England Renewable Energy Zone to provide recommendations that will minimise

the impact of transmission lines on the local environment. The impacts of overhead lines are being addressed primarily, as cabling only provides environmental benefits in rare circumstances (such as where transmission lines would need to pass through areas of bird migration, for example). Recommendations include positioning lines to avoid habitat of critically endangered species, to use biodiversity offsets as close to the project as possible, and to retain low vegetation wherever possible under lines to assist with animal movement and habitat.

Multiple strategies can be used for mitigation of environmental impacts of overhead lines.

Further references

1. [Financial aspects of underground cabling](#)
2. [Building Trust for Transmission - RE-Alliance](#)
3. [Technical aspects of underground cabling](#)
4. [2021 Transmission Cost Report](#)
5. [RGI Renewables Grid Initiative: Partial undergrounding for extra-high voltage AC connections](#)

Sincerely,
Community Power Agency