

Submission  
No 56

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

**Organisation:** All Thread Industries

**Date Received:** 15 November 2023

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14 November 2023

Ms Cate Faehrmann  
Chair, Select Committee on the Feasibility of Undergrounding the Transmission Infrastructure for  
Renewable Energy Projects  
Parliament of New South Wales  
Macquarie Street  
SYDNEY NSW 2000

Dear Ms Faehrmann,

**RE: INQUIRY INTO THE FEASIBILITY OF UNDERGROUNDING TRANSMISSION INFRASTRUCTURE FOR  
RENEWABLE ENERGY PROJECTS – GAINING SOCIAL LICENCE WITH MONOPOLES**

Allthread Industries appreciates the opportunity to contribute to the Legislative Council’s inquiry into the feasibility of undergrounding transmission infrastructure for renewable energy projects.

This submission focuses on monopoles – an alternative transmission structure solution that will reduce the visual impacts of new transmission projects in NSW and help projects gain social licence. Transmission projects are often delayed due to community opposition to new transmission towers, resulting in increased project costs and lengthy delays. This submission also introduces Allthread Industries and outlines its capabilities and capacity to manufacture monopoles locally with recycled content.

Allthread submitted an enquiry in August 2023. This updated submission includes a new case study on monopoles being used in Pennsylvania, US.

**ABOUT ALLTHREAD INDUSTRIES**

Allthread Industries is a leading Australian manufacturing company specializing in steel components production, often for renewable energy projects. We are national leaders in the fabrication of anchor cages for wind turbines, having successfully supplied more than 1,100 units in Australia with a significant pipeline of projects in progress.

With a legacy of 50 years, we have committed to supporting local steel manufacturing and local jobs from our base facility in Western Sydney. Our ethos prioritises local and recycled materials, alongside innovative measures that reduce environmental impact, encompassing landfill, transportation emissions, and more. Our locally sourced steel products mitigate project vulnerabilities linked to international supply chains, enhancing project resilience, and improving sovereign capabilities.

**MONOPOLES – AN ALTERNATIVE SOLUTION TO UNDERGROUNDING NEW TRANSMISSION TO GAIN  
SOCIAL LICENCE**

Monopoles are an alternative transmission structure to the traditional lattice structure used across the existing network in New South Wales. Monopoles consist of a single main stem anchored to the ground. They are one of the least visually intrusive tower options and are relatively easy to erect. These qualities increase likelihood of obtaining community support and gaining social licence for a transmission project.

As well as reducing visual impact, monopoles have other benefits. For example, less land is needed per tower and there are fewer components, resulting in faster installation and lower costs. Monopoles also have greater reliability in extreme conditions and more flexibility in design. Made from weathering steel alternatives, monopoles require less maintenance and repairs, and can be made with local steel.

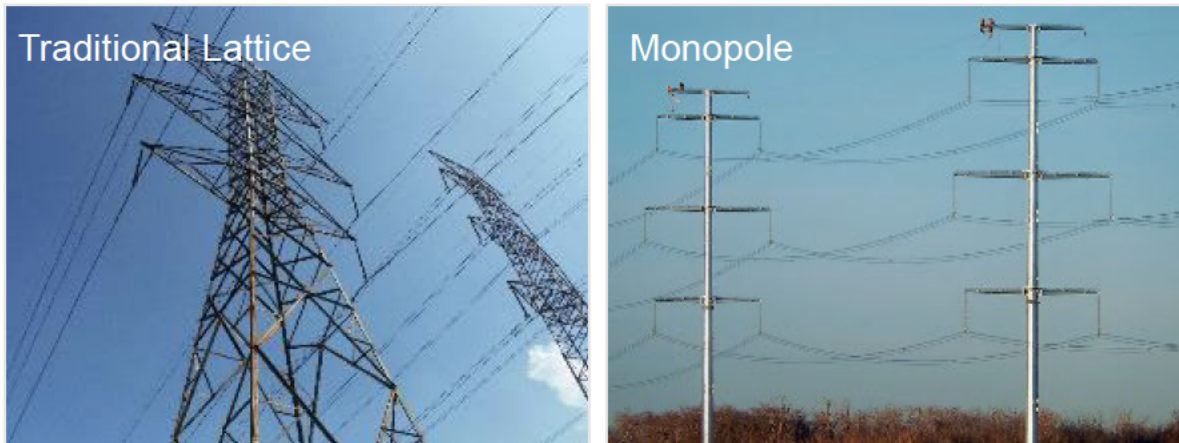


Figure 1. Transmission infrastructure, lattice and monopoles

### CASE STUDY – HEARTLAND TRANSMISSION PROJECT, ALBERTA CA

Monopoles have a strong track record of being a low-impact transmission structure solution, having been successfully implemented to mitigate the visual impacts of new transmission projects. The Heartland Transmission Project in Alberta (CA) made use of monopoles for this purpose and provides a strong example of community preference for monopoles.

The Heartland Transmission Project saw the construction of a new 65km double-circuit 500-kV transmission line through the city of Edmonton. Part of the new line was aligned through densely populated areas and green corridors, which resulted in high levels of public scrutiny. Businesses, homeowners, school boards, environmental lobbyists and other stakeholders voiced their concerns and contested the development. Extensive feedback was collected through public consultations and open houses held in the project vicinity, highlighting the community’s desire to preserve visual amenity. Accordingly, a roughly 10km section of line was constructed with monopoles, rather than traditional lattice towers, to meet the community’s expectations. This design choice was also able to satisfy the robust reliability and availability requirements of the network operator and survive the harsh seasonal conditions of the local environment.



Figure 1. Monopoles used in 10km of transmission line to gain community support.

## CASE STUDY –BRUNOT ISLAND-CRESCENT TRANSMISSION RELIABILITY PROJECT, PENNSYLVANIA, US

Duquesne Light Company is undertaking an upgrade of an existing 138kV transmission line in Pennsylvania. As part of this upgrade, 100 lattice transmission structures are being replaced with monopoles.

Duquesne Light considered undergrounding the transmission lines in designing the upgrade. The above-ground option was chosen in favor of undergrounding as (according to Duquesne Light):

1. Underground cables last half as long as overhead facilities.
2. There would be a significant increase in the project cost, mainly due to unfavorable terrain for undergrounding.

The decision to upgrade using monopoles was made to minimize their ground footprint and reduce maintenance costs. The new structures were also designed to fit into the natural environment, with a singular, reddish-brown, upright structure. These design choices minimize the impact on neighboring properties and surrounding vegetation, reducing visual impact and helping to establish community support for the project. Phases 1 and 2 of the project obtained planning approval without opposition from neighboring communities.

The same principles of gaining social license and community support apply to the new NSW transmission infrastructure required for renewable energy projects.



*Figure 2: Existing and new transmission structure for the Brunot island-crescent transmission reliability project*

## OUR CAPABILITY AND CAPACITY TO DELIVER MONOPOLES

Allthread Industries plan to become Australia's leading monopole producer. It is investing \$60 million to build a start-of-the-art manufacturing facility, able to support hundreds of kilometres of transmission lines annually. Located in Newcastle, it will be ideal for projects in both Queensland and New South Wales.

Allthread Industries is also supporting a feasibility study into the local manufacture of monopoles and wind turbine towers. Building this infrastructure locally will expedite Australia's renewable energy transition.

Throughout this transition, Allthread Industries will maintain its commitment to using local labour and steel and will continue to place a strong emphasis on incorporating recycled content. We firmly believe that this approach increases the likelihood of acceptance by communities and enables us to provide a sustainable cost structure for projects.

## **CONCLUSION**

Thank you for the opportunity to contribute to this important discussion and ensure that monopoles are considered as a potential solution that strikes a balance between cost-effectiveness and visual impact.

Allthread Industries would welcome the possibility of providing further information in a detailed briefing and to share our vision for new transmission in New South Wales. In the meantime, please don't hesitate to contact me at \_\_\_\_\_ or \_\_\_\_\_.

Kind regards,

**Simon Preston**

Group General Manager  
Allthread Industries