

Submission
No 114

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

Organisation: Squadron Energy

Date Received: 14 July 2023

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Members of Standing Committee on State Development
Parliament of NSW

Dear Members of the Standing Committee on State Development,

RE: Inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects

Squadron Energy welcomes the opportunity to respond to the *Inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects*.

Squadron Energy is Australia's leading renewable energy company that develops, operates and owns renewable energy assets in Australia. We have 1.1 gigawatts (GW) of renewable energy in operation and an Australian development pipeline of 20GW. Our development pipeline has projects at differing stages of development and includes wind, solar and firming capacity such as batteries and gas peaking plants with dual fuel capability. With proven experience and expertise across the project lifecycle, we work with local communities and our customers to lead the transition to Australia's clean energy future.

In this submission we would like to raise two points:

- the importance of meaningful community engagement by industry and government to support the timely delivery of transmission and the continued uptake of renewables; and
- the need to consider the cost and timing impacts of undergrounding transmission.

Planning new transmission with communities is key to supporting its timely deliver and the continued uptake of renewables

The decarbonisation of the electricity system (and the economy) calls for substantial investment in new transmission, generation, and storage projects. As renewable resources are often located in new areas away from legacy transmission, there is a clear and demonstrated need for new transmission – it is critical to transport renewable energy from where it is generated to where it is needed. We support the work undertaken by numerous jurisdictions to develop Renewable Energy Zones (REZ). By design, REZs provide a coordinated way to plan and deliver shared transmission infrastructure and contain the impacts on natural and cultural environments. Nevertheless, it is critical that new REZ transmission infrastructure is delivered in a way that minimises the impacts on, and maximises the benefits for, the communities and landowners who will host it.

To manage these impacts, it is essential that consumer and community groups have greater transparency across all stages and details of REZ transmission development. This includes genuine consultation around the route, technology choices, benefits, costs and risks of hosting energy infrastructure before decisions are made around the final network option and a route is selected. Renewable energy project developers have deep and recent experience in community engagement processes that can be drawn on to support transmission providers and government network planners as their own capabilities mature. Squadron Energy have implemented diverse tools and approaches to improve community acceptance outcomes learning from the experience of our own projects in communities across Australia. For example:

- undertaking thorough feasibility assessments that consider social, environment and economic deliverability factors of various options prior to engaging with affected landholders and communities;
- prioritising initial engagement with all landowners along the preferred route and notification of all directly neighbouring properties prior to wider public consultation (particularly where multiple sites/corridors are under consideration);
- streamlining engagement in collaboration with various community partners to better coordinate engagement activities (avoiding fatigue) and help build community understanding of the roles and responsibilities of various parties;
- setting up a community advisory groups with First Nations, environment and other special interest groups to input into project decisions, and
- working with communities to identify and tailor benefits, not just for host or neighbouring landholders but the community as a whole.

These practices ensure the level of commitment towards a project is aligned with the information available and provide avenues for communities to input well before specific project investment decisions are made. Such an approach is critical to build and maintain trust, avoid extreme community opposition and identify risks before they have a material impact on the timely and efficient delivery of a project.

The cost, logistics and timing of undergrounding transmission need to be carefully weighed up

One of the key challenges of the transition is to build the necessary infrastructure in ways that are acceptable to communities who will live near it or are impacted by the process. Some communities can see undergrounding transmission as a preferable option as it reduces the visual impacts of the lines.

An associated challenge of undergrounding transmission is managing the cost impact on all energy users.¹ In a report commissioned by Transgrid, the cost of undergrounding the 360km Humelink project was estimated at three times higher than for above ground transmission lines.² The increased costs were attributed to a range of factors including: the need to dig trenches, labour, materials, plant and equipment, engineering, and project management costs. This would have a significant impact on the affordability of energy as the additional costs of undergrounding are passed through to consumers.

Undergrounding transmission may also raise a number of practical and logistical challenges that would impact the delivery timeframes for transmission projects. Notably, undergrounding transmission lines has been implemented in limited circumstances in Australia to date and would require new expertise capable of delivering these types of projects at scale. Insufficient equipment may also present challenges in the Australian market. There is therefore a risk that resource shortages and the complexity of undergrounding may delay projects or create cost pressures. Such delays could ultimately lead to higher wholesale energy costs if new transmission to deliver renewables means that thermal generation remains longer than necessary.

While the visual impact is reduced by undergrounding transmission lines, there is a real potential to increase other environmental impacts as the construction process will include a greater footprint. This can

¹ The Australian Energy Market Operator (AEMO) 2022 ISP estimates over 10,000km of transmission will be needed in the next decade.

²GHD report for Transgrid, Concept Design and Cost Estimate Humelink Project – Underground, 2022.

lead to increased vegetation clearance requirements and larger areas where productive activities are constrained. Ongoing operational aspects of undergrounding should also be taken into account as repair costs and regular inspection and testing activities will vary significantly from the traditional overhead approach.

Although undergrounding transmission may present several challenges, there may be circumstances where the impacts and threats of overhead lines to sensitive regions may warrant consideration of undergrounding. On whole, we consider undergrounding transmission is unlikely to be feasible at the scale required by the transition and should therefore only be considered in select circumstances.

We look forward to the opportunity to continue to engage in work to support the rapid decarbonisation of the electricity system. If you would like to discuss this submission please contact Rupert Doney – Director, Regulation and Policy at

Yours sincerely,

Graham Denton, Head of Energy Markets