

# Your questions answered

## Underground Feasibility Study

HumeLink – Underground Feasibility Study

In response to community feedback in late 2021, Transgrid assembled a community-led Steering Committee to commission an independent study to assess the feasibility of several underground transmission line options for HumeLink.

The Steering Committee was established in late 2021 and is made up of three Transgrid team members, three community members from each of the Community Consultative Groups and an independent technical consultant from Amplitude. The Committee developed a detailed scope and engaged consultants GHD with sub-consultants Stantec to undertake the study and to produce a report outlining the outcomes of the study. GHD and Stantec are specialist engineering professional services consultancies.

GHD/Stantec were tasked with investigating a number of options and producing a report that outlines the positives and negatives of the various options. They were not asked to rank or recommend any particular option.

After a number of workshops with the Steering Committee, GHD/Stantec provided the Committee with a draft report on May 27, 2022. The Steering Committee provide comments on the draft on June 5, 2022 and the final report was issued to the steering committee on June 17, 2022. The report was published on the HumeLink website on the same day.

Transgrid will now consider the options presented in the report and provide a formal response to the report in late June, 2022.

We have compiled a list of your most frequently asked questions about the Underground Feasibility Study below.

## 1. Underground vs Overhead

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### **What is an overhead transmission line?**

An overhead transmission line consists of a series of conductors (metal wires) supported by transmission structures to maintain a safe electrical clearance to the ground. The structures may be lattice towers or poles made of steel, concrete or wood, with varying designs depending on the number of conductors, the voltage and local environment. At the base of transmission line structures, there are buried earth straps which extend for up to 15 metres from the footings. Structures may also be supported by guywires, which extend out from the pole to provide additional strength and support. Access tracks are required for Transgrid to access and maintain its transmission line structures.

### **What is an underground transmission line?**

Underground transmission cables are installed in trenches filled with an engineered thermal backfill. In some places the cable is contained within conduits or concrete ducts or cable bridges. Generally concrete cable joint bays are required every 800-1,600m to join each drum of cable together. Communications optical fibre cabling is also laid in the same trench.

### **What are the benefits of overhead transmission lines?**

While the underground feasibility assessment will outline specific benefits for overhead lines for HumeLink, in general terms, overhead transmission lines are more cost effective and faster to install and last longer than equivalent underground lines.

Further, overhead transmission lines can be installed over more challenging terrain than underground transmission lines and are easy to access and maintain during operation.

### **What are the benefits of underground transmission lines?**

While the Underground Feasibility Study will outline benefits of underground lines for HumeLink, in general terms underground lines have less visual impact on the community, they also require less continual vegetation removal, no effective noise, lower Electro Magnetic Fields, low to negligible risk of and to bushfires and no impact on aerial operations.

### **What are the negatives for overhead transmission lines?**

Overhead transmission lines have a greater visual impact on the community. They may also require a larger area of land to be cleared around the lines to prevent possible damage. They can also produce some noise subject to the environmental conditions, present risk both from and to bushfires and impact on aerial operations.

### **What are the negatives of underground transmission lines?**

Underground transmission lines are generally more expensive and take longer to construct, especially in challenging terrain. They may have a shorter lifespan as life extension of overhead lines is relatively easy, and to access in the event of a fault. Underground transmission lines also require large continuous trenches to be built during construction which causes environmental impacts and damage to land and soil.

## **2. Community Steering Committee**

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### **Why was the community steering committee established?**

During landowner and community consultation, Transgrid was asked to investigate and explore the feasibility of building the HumeLink project via underground cable instead of overground transmission lines.

In response, Transgrid formed a community-led Steering Committee to undertake a feasibility study of several alternative options. The steering committee developed an Underground Feasibility Study scope of works and engaged consultancy GHD and sub-consultants, Stantec to complete the work.

### **Who is on the Steering committee?**

The steering committee is made up of three Transgrid team members, three community members from each of the Community Consultative Groups and an independent technical consultant from Amplitude.

### **How is the steering committee funded?**

Transgrid has provided the funding for the study.

### **What authority does the Steering Committee have?**

The Steering Committee was tasked with commissioning, reviewing and finalising a comprehensive underground feasibility assessment report. To do this they had the following key deliverables:

- developing the final underground feasibility study scope of works
- identifying and appointing specialist consultant to undertake the study
- reviewing and commenting on draft report prior to it being finalised.

The Steering Committee is wholly aligned to the development and delivery of the report to the community for information and to Transgrid for consideration.

Transgrid will consider the report and determine how it will respond in respect to the development of the Humelink.

## **3. Underground Feasibility Study**

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### **Why is the feasibility study being done now?**

The feasibility study is being done now as a direct response to landowner and community feedback that Transgrid had not been transparent about how the design had developed from inception to the current overhead transmission line proposal.

As a result, Transgrid welcomed the opportunity to participate in a community-led, alternative options assessment that will:

1. Provide greater transparency to landowners and the community
2. Provide Transgrid with an opportunity to proof their initial concept design
3. Identify potential improvements to the current proposal

**Did Transgrid consider constructing HumeLink underground at project inception?**

Yes. Building HumeLink using underground cable was considered as part of the early concept design development. However, it was considered very difficult to build due to the nature of the terrain, and consequently would extend the duration of the construction period. This would likely compromise the project timeframe requirements and significantly increase the project cost to an unacceptable level. As such, Transgrid proceeded with the overhead option.

Transgrid welcomes the additional transparency the Underground Feasibility Study will provide all stakeholders and is considering all outcomes within the report.

**Did the feasibility study consider a hybrid above ground and underground Option?**

Yes. The Steering Committee asked GHD and Stantec to look at different options in their analysis for the Underground Feasibility Study. GHD/Stantec looked at configurations that included combinations of overhead and underground arrangements.

**What are GHD's qualifications to undertake the Underground Feasibility Assessment?**

GHD is an international professional services firm with specialisations in engineering. They regularly undertake assessments of this scale and nature for private and public organisations globally. GHD engaged Stantec as the High-Voltage Direct Current (HDVC) expert.

**Will the feasibility study change anything?**

Transgrid will consider the options presented in GHD's report and weigh them against a set of multiple criteria to determine if there is an opportunity to amend some or all of the design in response to the report.

Transgrid will provide a formal response to the report on June 27, 2022.

## 4. Next Steps

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**What are the next steps now the assessment is finished?**

As Transgrid received the Underground Feasibility Study at the same time as the Steering Committee, we have not yet had time to consider the report. Transgrid will review the study before deciding on the next steps.

Transgrid will engage with internal and external stakeholder and consider landowners, the community and consumers/customers in its decision-making process.

Once Transgrid has developed a way forward, it will share this approach with landowners and the community.