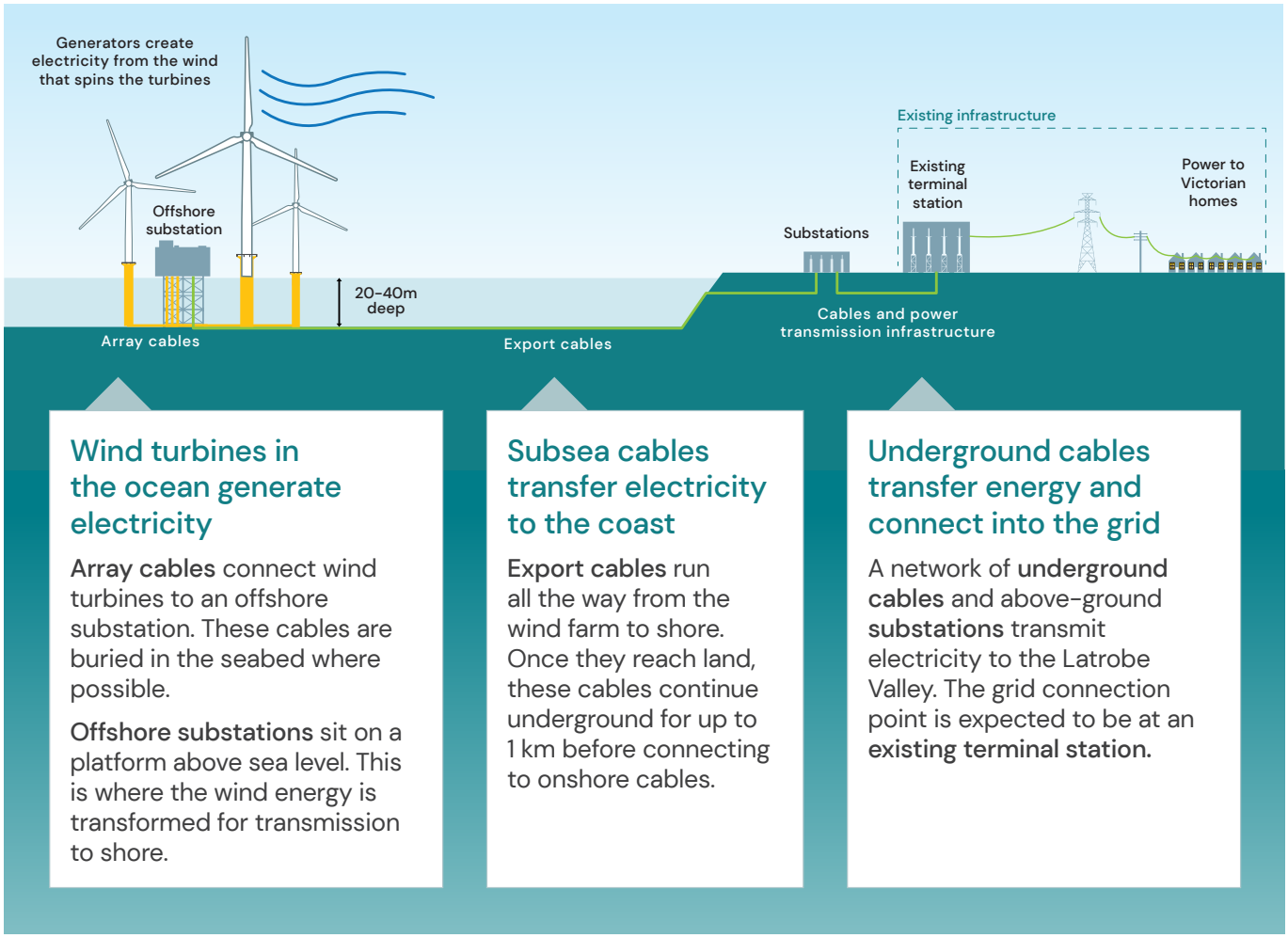
Star of the South

Transmission

The Star of the South project includes a transmission system of cables and substations. It would transmit electricity from wind turbines off the south coast of Gippsland to the Latrobe Valley and into the grid to power Victorian homes.

Parts of the transmission system



Wind turbines in the ocean generate electricity

Array cables connect wind turbines to an offshore substation. These cables are buried in the seabed where possible.

Offshore substations sit on a platform above sea level. This is where the wind energy is transformed for transmission to shore.

Subsea cables transfer electricity to the coast

Export cables run all the way from the wind farm to shore. Once they reach land, these cables continue underground for up to 1 km before connecting to onshore cables.

Underground cables transfer energy and connect into the grid

A network of **underground cables** and above-ground **substations** transmit electricity to the Latrobe Valley. The grid connection point is expected to be at an **existing terminal station.**

We're committed to using underground cables, unless it's not technically feasible or where overhead lines would have lower impacts. While it's more costly to construct underground cables, we believe there are many other benefits for the community, the landscape and the environment.

Transmission investigation area

Facts and figures

HVAC
Electricity will be transmitted in High Voltage Alternating Current (HVAC) from the offshore wind farm to the grid connection point. HVAC transmission is common around Australia and the world.

Onshore cables
75 km, mostly underground

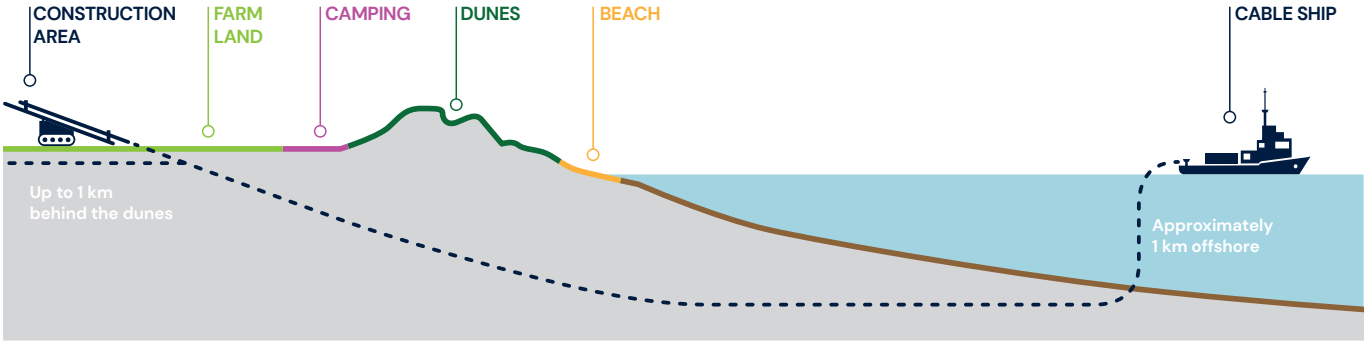
A Offshore transmission investigation area

Subsea cables connecting the wind farm to land would be located in this area. This area is still under investigation. The final route will depend on:

- Offshore substation locations – a direct route from substation to shore is preferred
- Any sensitive reefs and marine habitat – will be avoided where possible
- Seabed conditions – can affect cables being laid in particular areas.

B Shore crossing at Reeves Beach

The subsea cables would come to shore around Reeves Beach. We would use a no-trench construction method to avoid disruption to the beach, dune system, coastal flora and fauna, and shallow marine areas. The subsea cables connect with the land cables at the onshore construction area.



Artists impression, not to scale

C Land route

The 75 km land route passes through mostly agricultural and plantation land. The route shown on this map is a 3 km-wide investigation area. We'll work with landholders and narrow this down to a final alignment 30-40 m wide. Some additional space would be required during construction.

D Following Basslink

Around 35 km of the land route may follow Basslink – an existing, high voltage overhead transmission line. We're working with Basslink to determine how much space is needed between their overhead lines and our underground cables, and if it's possible to share some of their existing easement.

E Grid connection in the Latrobe Valley

The Australian Energy Market Operator (AEMO) will decide where in the Latrobe Valley we're able to connect into the grid.

Offshore subsea cables
20-40 km, depending on the final offshore cable route

Onshore substations
Up to 4, above ground, locations yet to be confirmed

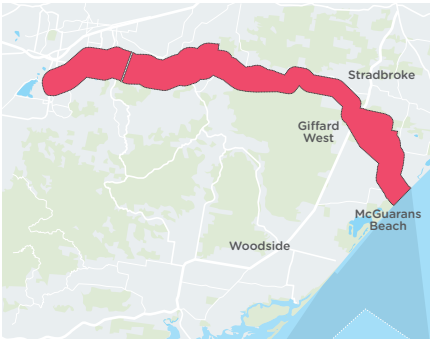
Offshore substations
Up to 4, above sea level , locations yet to be confirmed

Options assessment – what we found

We assessed three possible route options.

After analysing the pros and cons of each option, we found that Corridor B (Eastern) performs best against a range of important criteria – particularly environment, constructability and technical. This is the route we'll progress and seek approval for.

Here's an overview of our option assessment findings.

Option	Pros	Cons
Corridor A (Western)  *Reeves Beach, Woodside, Old Rosedale Road, Hiamdale, Latrobe Valley*	✓ Shortest, most direct route for efficient transmission of electricity ✓ Lowest cost ✓ Shorter offshore cable route has less potential for marine and coastal impacts	✗ Significant vegetation impacts, greatest potential to impact on biodiversity and habitat ✗ More community concerns raised, mostly about environmental issues ✗ Some construction challenges due to confined and remote area ✗ Some landholder concerns raised
Corridor B (Eastern)  *Reeves Beach, Darriman, Giffard West, Hiamdale, Latrobe Valley*	✓ Strong community support for following Basslink as much as possible ✓ Avoids highly vegetated areas for reduced impact on trees, biodiversity and habitat ✓ Fewer constraints provides flexibility for system design and construction ✓ Fewer community concerns raised ✓ Shorter offshore cable route has less potential for marine and coastal impacts ✓ Best safety outcomes expected	✗ Longer onshore route means some minor losses of electricity during transmission ✗ Some landholder concerns raised ✗ More costly than Corridor A **On balance, this option has the best overall outcome and will be progressed through planning and design**
Corridor C (Northern)  *McGaurans Beach, Giffard, Hiamdale, Latrobe Valley*	✓ Strong community support for following Basslink as much as possible ✓ Generally avoids highly vegetated areas for reduced impact to trees, biodiversity and habitat	✗ Highest technical difficulty due to complex construction conditions at shore crossing ✗ Longer offshore route has greater potential for marine impacts ✗ Longer offshore route means some minor losses of electricity during transmission ✗ Highest cost ✗ Some landholder concerns raised ✗ More known sites of Aboriginal cultural heritage significance which could be affected

Options assessment – how we selected a route

To select the most suitable route we considered:

- Findings from engineering, environmental and heritage studies
- Feedback from landholders and local communities
- Cost of electricity
- Advice from technical specialists.

Here's the key steps in our options assessment process.

1 Option identification

An initial study identified three route options which could be suitable for underground transmission cables. This study considered:

- Constraints – areas to avoid such as hilly ranges, areas of environmental and cultural significance and towns.
- Opportunities – potential to co-locate with existing infrastructure such as roads and powerlines to reduce our footprint.

2 Consultation

We discussed the options and asked for feedback from:

- Landholders and asset owners along each route
- Local community members and groups
- Organisations with a role in project assessment and approvals
- Environment and other special interest groups.

People asked us to select a route which minimises impacts to the land and marine environment, farmers and local communities. A consultation report outlining what we heard is available at starofthesouth.com.au.

3 Desktop studies

Specialists completed desktop studies to identify potential risks, issues and benefits of each route option.

4 Site investigations

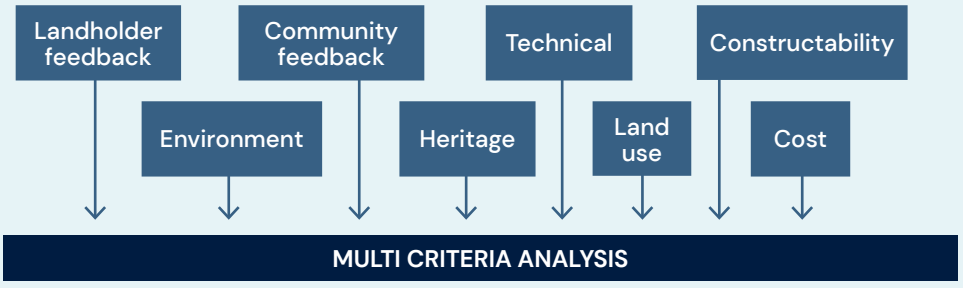
Specialists went out on the ground to 'reality check' information collected so far, test assumptions and collect important data. Site investigations included:

- Soil testing
- Feature survey
- Flora and fauna surveys
- Marine ecology surveys
- Seabed studies.

5 Options assessment

All information was considered through a 'Multi Criteria Analysis'. This is an evidence-based approach which evaluates each option against several important criteria, to determine which one performs best overall.

These key criteria were considered in our assessment.



Next steps

Working with landholders

An important next step is working with landholders whose property may be suitable to host the transmission infrastructure.

We'll work together to fine-tune the alignment, discuss compensation and plan ways to minimise impacts to their land.

Site investigations and engineering design

Our engineering team will develop a design for the transmission system. This will involve site investigations to better understand soil and groundwater conditions and to address any technical challenges.

Environmental assessment and approvals

Potential impacts from the project's construction and operation, including the transmission system, will be considered through comprehensive environmental assessments.

This involves ongoing environmental monitoring on land and at sea, and assessment of matters including ecology, water, Aboriginal cultural heritage, historic heritage, agriculture, noise, electromagnetic fields and traffic.

Get involved

We're keen to hear from you as we continue investigating the Star of the South project. There'll be many opportunities to get involved. We'll consult with project stakeholders, including local communities, to seek feedback and local knowledge. We'll use what we hear to inform ongoing project development and assessments.

More information

To find out more about the Star of the South project and register for updates:

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Star of the South
Star of the South Project
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