

## What is HumeLink?

HumeLink is one of Australia's largest energy infrastructure projects connecting renewable energy sources to the grid, increasing availability and market competition and helping to put downward pressure on energy prices in Australia. The project will consist of 365 kilometres of 500 kV overhead transmission lines connecting Wagga Wagga, Bannaby and Maragle substations.

HumeLink is critical to bringing more affordable, reliable and renewable energy to the grid and is a priority project for the Australian Energy Market Operator (AEMO) and the Commonwealth and NSW Governments. HumeLink is subject to the approval of the Australian Energy Regulator. To view HumeLink's interactive route map go to [transgrid.com.au/humelink](https://transgrid.com.au/humelink).

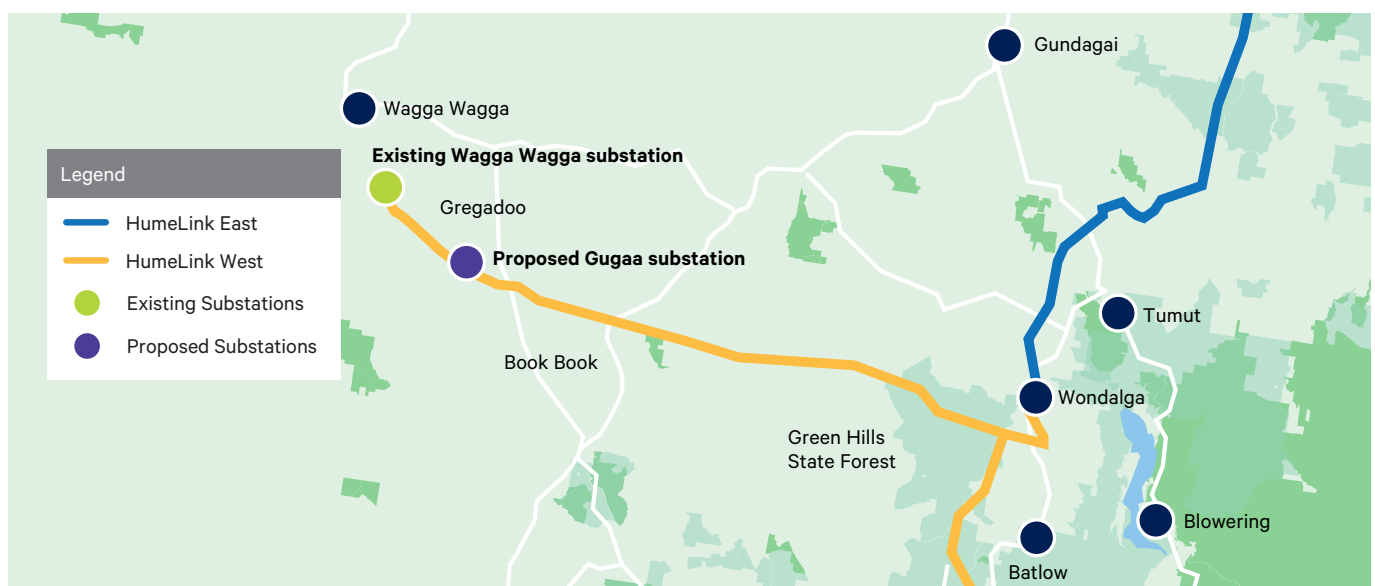
## Proposed Gugaa substation

Transgrid is proposing a new 500 kV substation at Gregadoo (Gugaa 500 kV substation) approximately 11 kilometres south-east of the Wagga 330/132 kV substation. The new substation is needed as the Wagga 330 kV substation does not have space to support the HumeLink project's infrastructure needs.

This includes new transformers and reactors, overhead electrical components, auxiliary services buildings and associated facilities (e.g. for drainage).

The Wagga 330 kV substation on Ashfords Road, Gregadoo and the Bannaby 500 kV substation on Hanworth Road, Bannaby would be expanded and modified to accommodate the new 330/500 kV transmission lines. This would include a substation bench extension and modifications to electrical equipment, drainage, external fence, substation roads and other minor infrastructure.

The project would connect to the future Maragle 500 kV substation approved under the Snowy 2.0 Transmission Connection Project.



**Image:** Wagga Wagga 330 kV substation and proposed Gugaa 500 kV substation

## Layout

As we progress through detailed design, more information on the indicative layout of the proposed Gugaa substation will become available.

The required infrastructure would occupy an area of about 22 hectares. The typical infrastructure and equipment in the new substation would include:

- split substation bench with a 20 metre buffer area around each of the benches
  - the buffer area would include (but wouldn't be limited to) the Asset Protection Zone (APZ), stormwater, drainage, and oil containment infrastructure, wastewater infrastructure, access and parking
- two new auxiliary services buildings: a 500 kV auxiliary services building and a 300 kV auxiliary services building
- gantries, which are approximately 33 metres in height and are the highest structures at the substation
- seven new single-phase 500/330 kV transformers (including one spare transformer)
- four new three-phase 500 kV shunt reactors (including one spare reactor) a range of supporting 500 kV and 330 kV electrical components including overhead conductors, busbars and gantries
- 500 kV and 330 kV circuit breakers, current transformers, voltage transformers, disconnectors, earth switches and other high voltage equipment
- four new 330 kV bays and four new 500 kV diameters
- 125 volt DC and 400 volt alternating current electrical distribution systems
- drainage infrastructure and oil containment system.

**Auxiliary services buildings** for HumeLink would include secondary systems such as control, automation, protection and communication systems and ancillary services such as fire detection, security system and air conditioning.



**Image:** A transformer being transported.

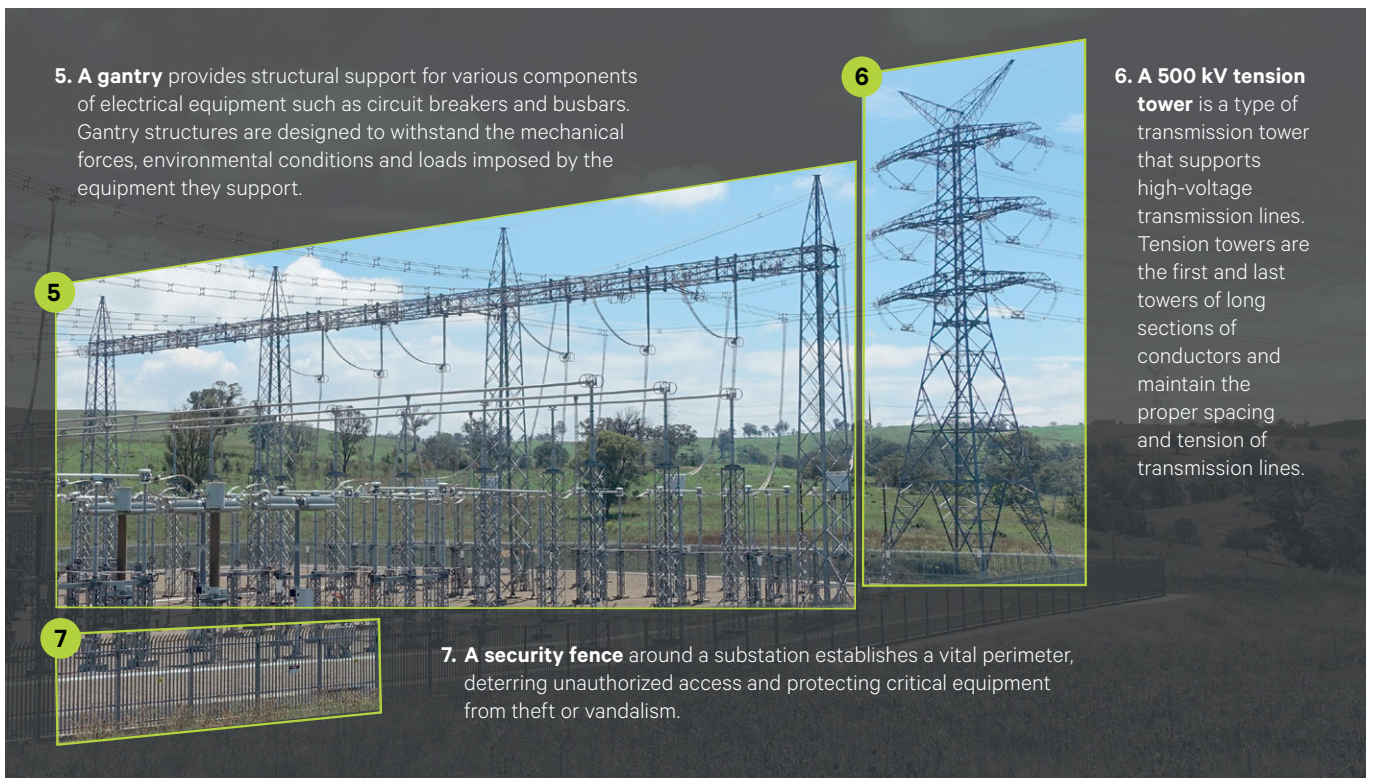
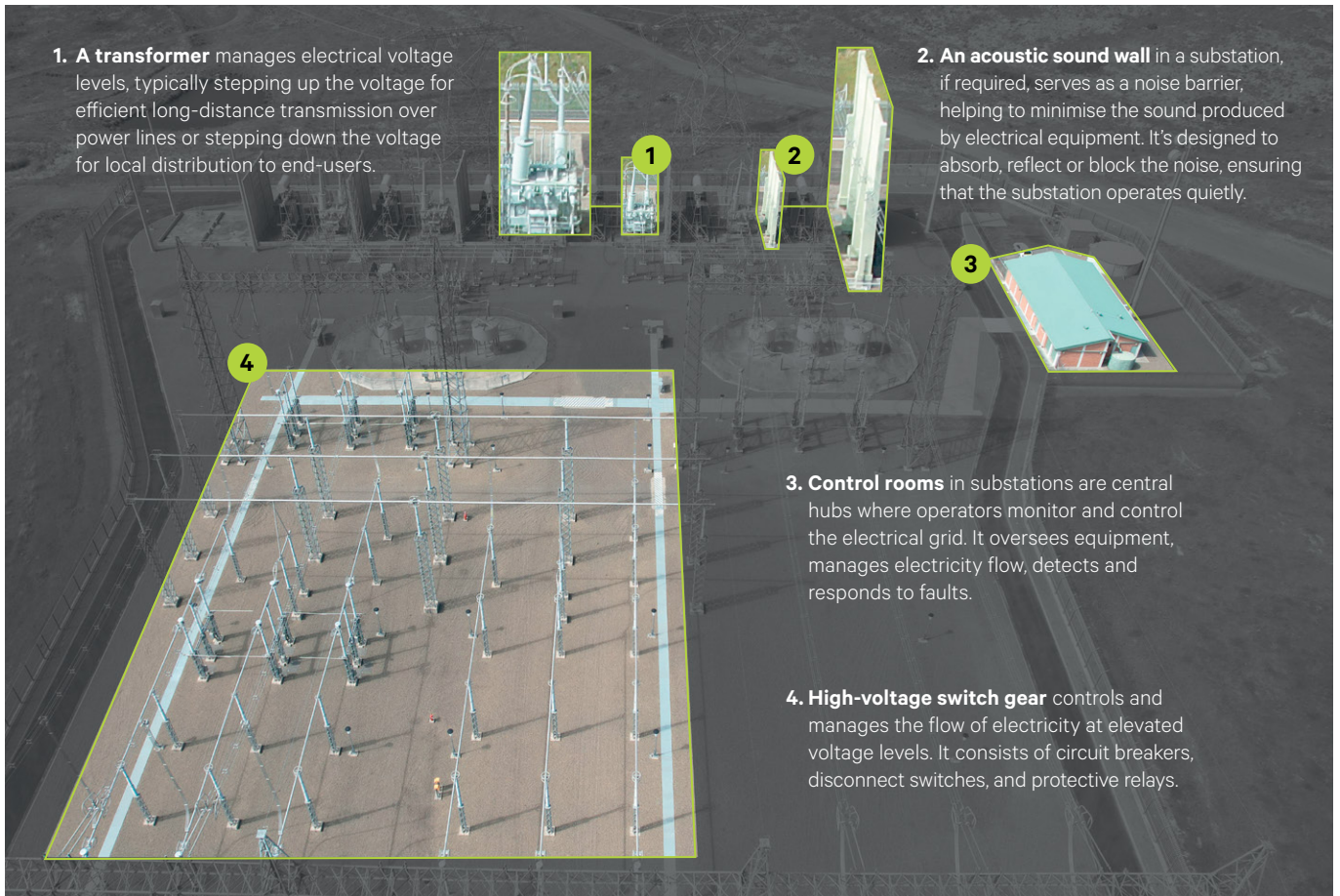


**Image:** A three phase 500kV shunt reactor.





## Design features of a substation





## How are substations constructed?

The proposed Gregadoo construction compound will be located within the substation property. This compound or lay down area will be used as a storage location for equipment and materials and will include basic amenities such as toilets. Further information on the Gregadoo compound will be available in the HumeLink Amendment Report that will be lodged with the Department of Planning, Housing and Infrastructure (DPHI) in 2024.

### Safety and security

Fencing around the proposed substation will be approximately three metres high around all sides of the switchyard. To comply with Transgrid's safety requirements, the following additional security measures would be required:

- security cameras within the substation
- operational lighting
- safety and public information signage at the substation
- an APZ, which would be an area kept clear of all trees and vegetation that may affect the substation during a bushfire; the APZ would comply with Transgrid's design and safety standards.

The safety and welfare of our people, delivery partners and the broader community is our highest priority. To find out more about how Transgrid safely operates visit the Community Safety section of the [Transgrid website](#).

### Traffic and transport

#### Vehicle movement

Vehicles will be used for construction and operation purposes. The construction stage of the project would require workers, construction materials and equipment to be transported to and from the proposed substation location.

There will be minimal traffic associated with maintenance and inspection activities during operation.

#### Access and parking

An access road would allow access for maintenance and operational workers from Livingstone Gully Road

to the proposed Gugaa substation. We anticipate that road work improvement would be needed to facilitate connection.

Parking for a small number of maintenance and heavy vehicles would be provided within the substation boundary.

#### Lighting

For security purposes, operational lighting is required from dusk till dawn, seven days a week. Motion-activated perimeter security lighting is being considered to minimise impacts on neighbouring properties.

We are also considering utilising infrared lighting at night.

#### Water supply

Water is required for operation and maintenance purposes. It would be sourced from a rainwater tank fed from the auxiliary services buildings, allowing for water truck deliveries if required. Connection to water mains is not anticipated at this stage.

#### Stormwater and drainage

The proposed Gugaa substation would include suitable drainage infrastructure to capture and discharge stormwater collected from within the substation during operation.

The stormwater drainage system would be designed for a rainfall event corresponding to a 10% Annual Exceedance Probability (AEP) or a one in 100-year event. This design will also include series of surface drains which would interconnect with a grid of stormwater pits.

To find out more about hydrology and flooding, refer to the [Hydrology and Flooding Factsheet](#).

#### Fire mitigation

To ensure safety during a fire event and to reduce the available fuel loading around the substation, the design of the substation will adopt an APZ clearance buffer as prescribed by the NSW Rural Fire Service standards. For more information, please read the [Bushfire Risk Assessment Factsheet](#).

## Connect with us

Transgrid is committed to working with landowners and communities through the development of HumeLink. Please connect with us for more information.



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