HumeLink

Transmission towers

FACT SHEET | JANUARY 2026

What is HumeLink?

HumeLink is one of Australia's largest energy infrastructure projects connecting renewable energy sources to the grid and helping to put downward pressure on energy prices in Australia.

The project consists of 365 kilometres of 500 kV overhead transmission lines connecting Wagga Wagga, Bannaby and Maragle, and new or upgraded infrastructure at four substations. The project is being delivered in two sections, by two joint venture partners, HumeLink East: Acciona and Genus and HumeLink West: UGL and CPB Contractors. For more information, go to transgrid.com.au/humelink

The HumeLink transmission line will be made up of approximately 830 steel transmission towers that will be connected by high-tension conductors (also known as cables or wires). These conductors will transport high voltage electricity over long distances, where it will be converted at substations to low voltage electricity for delivery to businesses and consumers through the National Energy Market.

The HumeLink project will be made up of approximately 830 transmission towers

What type of transmission towers will HumeLink use?

The HumeLink project comprises of a series of freestanding steel lattice transmission towers that will support dual circuit 500 kV transmission lines (Figure 1).

The towers support six bundles of conductors with four conductors in each bundle that transport high voltage electricity over long distances. Above the conductors, the towers also support an earth wire and an Optical Ground Wire (OPGW). The design of the towers will vary depending on the terrain but typically range from approximately 50 to 76 metres (maximum) in height. The distance (or span) between the towers will be approximately 300 to 600 metres, depending on topography and ground conditions.

There are three main types of towers used in the project:

- 500kV alpine (suspension and tension)
- 500kV non-alpine (suspension and tension)
- 330kV non-alpine (suspension and tension)

Alpine towers are built to handle harsh conditions like strong winds, ice and snow. They are heavier and placed closer together than non-alpine towers to withstand these topographical challenges.

Each tower type can be either:

- Suspension towers – typically used where the transmission line runs straight or with minimal change in direction.
- Tension towers – typically used where the line changes direction or needs extra support due to tension.

The type of tower at each location depends on terrain, environmental conditions and the direction of the alignment.

- HumeLink East uses only 500kV non-alpine towers (tension and suspension), with designs adjusted for tension and load requirements.
- HumeLink West uses a mix of all three tower types because of varied terrain, weather conditions and the need for 330 kV towers in certain sections of the alignment.

Figure 1: HumeLink West non-alpine 500 kV transmission tower ready for stringing.

Suspension towers vs tension towers

The two most common types of 500 kV transmission towers are:

Suspension towers – used to support the transmission conductors. Their primary function is to keep the wires at a safe height above the ground and to support the weight of the cables across long spans.

Tension towers – used as the anchoring points to connect and apply tension to the conductors. Tension towers are the first and last towers of long sections of conductors. This type of tower is also commonly used at road or railway crossings, and where there is a change in direction.

Tension towers require thicker steel and more substantial foundations to support the higher horizontal loads they carry, which result from being at the end of sections of conductors. The use of these materials makes their construction more costly compared to suspension towers.

What makes up a transmission tower?

500 kV Suspension tower

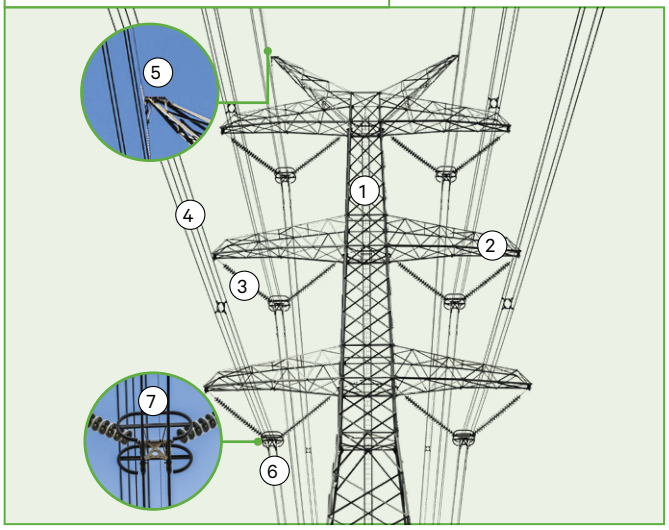

Figure 2: 500 kV suspension tower design features.

500 kV Tension tower

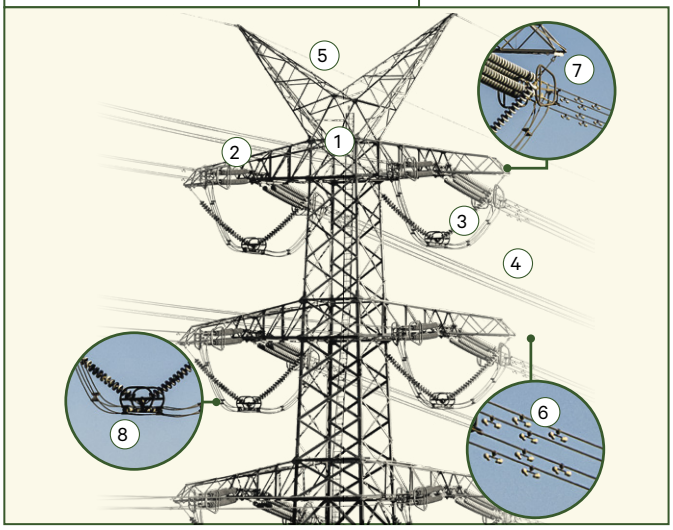

Figure 3: 500 kV tension tower design features.

1. **Tower body** is the main central structure that connects to the foundations.
2. **Cross arms** also known as wings, are the sections that extend outward from the main body and hold the conductors.
3. **Insulators** connect the conductors to the cross arms. They stop the electricity from finding a path to ground, and also prevent the conductors from touching the tower body.
4. **Transmission conductors** provide the path the electricity flows through.
5. **Earth wires** do not transmit electricity, but instead protect the line against lightning and voltage surges.
6. **Vibration dampers** prevent damage to transmission lines and reduce the effects of vibration caused by wind.
7. **Corona rings** also known as 'grading rings' help provide a smooth surface around sharp edges, such as bolts and connection pins, and help reduce noise.
8. **Jumpers** are unique to tension towers and connect one side of the line to the other to maintain electrical continuity.

How are transmission towers constructed?

Surveying

Surveys determine elevation levels, distances and terrain angles. This provides us with valuable information to identify potential construction sites and access points at each tower location.

Access tracks clearing and construction

We clear and construct access tracks so vehicles, machinery and equipment can safely access the construction site. Surveying allows clearing to be kept at a minimum.

Excavations

Piling rigs and excavators remove soil and rocks, clearing the site for the construction of the tower's foundations.

Construction of foundations

This includes reinforcement, setting the levels and pouring concrete.

Tower assembly

The tower sections are pre-assembled at ground level using safe heavy lifting methods, such as cranes. HumeLink uses both suspension and tension towers, with tension towers requiring a larger foundation.

Tower erection

The tower is moved in sections onto the concrete foundations using safe lifting methods such as a crane.

Stringing

Insulators and pulley blocks are put in place to enable wires to be installed. The conductor cables are winched into position between the towers using equipment such as helicopters and drones.

The new cables are pulled through and connected at each end. The pulley blocks are then removed and the cables are connected to the insulators, known as clipping in.

Restoration

Any disturbed ground or vegetation will be stabilised during construction and rehabilitated as soon as practical after construction. We will consult with the landowner to plan this work.

Figure 4: HumeLink West tranmsission tower under assembly south-east of Wagga Wagga.

Figure 5: HumeLink first tower foundation construction.

Tower assembly and erection began in November 2025 on both HumeLink West and HumeLink East. Tower assembly and construction are expected to take up to 14 days for suspension towers and 20 days for tension towers. If out of hours work is required, all impacted landholders and near neighbours will be notified seven days before work starts.

Transmission tower construction sites

Transmission tower construction sites will typically consist of:

- a tower construction bench of approximately 70 metres x 50 metres for each tower. This will depend on ground conditions and the transmission tower type
- additional areas called brake and winch sites. Brake and winch sites are used for setting up the stringing equipment to pull in the conductors. Brake and winch sites are approximately 50 metres x 50 metres in size depending on ground conditions and the length of conductors to be installed.

Brake and winch sites

A brake and winch site is an area used for the preparation, assembly and operation of stringing equipment to connect transmission conductors to towers.

To connect the transmission conductors, a brake and winch site will be positioned along the alignment roughly every six to eight kilometres and will require a 50 metre x 50 metre flat area. The site may also be required when there is a change in angle or direction in the line.

The majority of the brake and winch sites will be located within the easement. Where there is a deviation or angle in the line, the brake and winch pad site may fall outside the 200-metre corridor.

Where will the transmission towers be located?

The final location of each transmission tower depends on a range of factors such as the distance between each transmission tower, geological conditions and environmental constraints. For example, the project aims to avoid specific areas of biodiversity and heritage.

Positioning of transmission towers has been confirmed across the majority of the alignment. These locations can be viewed on the HumeLink interactive map.

Transmission tower easements and operations

Transmission line easements allow our people access to safely construct, operate and maintain the infrastructure.

The land within the easement can still be used for various activities, such as:

- agricultural activities, including cropping and grazing
- operating mobile plant and equipment (height and minimum safe approach distance restrictions apply)
- most domestic recreational activities (excluding kite and drone flying).

Further details about easements can be found in the Transgrid Easement Guidelines, on the Transgrid website.

Figure 6: HumeLink tower erection underway south-east of Wagga Wagga.

Connect with us

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

Transgrid

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Delivery Partners

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