VNI West

Environmental Impact Statement (EIS)
Tower construction

FACT SHEET | FEBRUARY 2025

VNI West is a proposed 500kV double-circuit transmission line connecting the energy grids of NSW and Victoria. As part of the Environmental Impact Statement (EIS) being prepared, we are assessing the potential construction impacts, based on a detailed description of the project and proposed methods of construction.

Transmission line structures

The VNI West (NSW) project would comprise of a new double circuit 500kV transmission line from the NSW/Victorian border to the future Dinawan substation. In addition, Transgrid are proposing to upgrade the existing Transmission Line 51 between Ivydale Road (south of the existing Wagga 330kV substation) and the future Gugaa 500kV substation. The upgrade would see the removal of the existing single circuit 330kV transmission line, replaced with a new double circuit 330kV transmission line.

500kV transmission line structures

The 500kV transmission line structures will be supported by a series of free-standing steel lattice transmission line structures. These are typically spaced between 400 and 600 metres apart; however shorter distances may be required in some circumstances (such as across a waterway or to maintain appropriate spans across other obstacles). Transmission line structures would be up to 76 metres tall. The largest footprint area for the tower structures would be around 484 square metres (22 metres by 22 metres).

We are planning to use two types of transmission line structures for the 500kV line:

- Free-standing steel lattice structures typically have a base footprint of around 18 metres by 18 metres. These structures would be used for straight sections of transmission lines and between strain structures.
- Strain structures consist of a slightly wider base footprint of around 22 metres by 22 metres. These are used for the first and last structure of the transmission line, at either side of a major road or river crossing, and to manage a change in direction for the transmission line.

330kV transmission line structures

The 330kV transmission line structures would usually be spaced between 300 and 450 metres apart and will be up to around 56 metres in height (compared to the existing Line 51 transmission line structures which are around 40 metres in height). The largest footprint area for the tower structures would be around 256 square metres (16 metres by 16 metres).

We're planning to use the same two structure types on the 330kV transmission line:

- Free-standing steel lattice structures that typically have a base footprint of around 14 metres by 14 metres, and would be used on straight sections of transmission lines and between strain structures.
- Strain structures that will typically have a base footprint of around 16 metres by 16 metres, and used for the first and last structure of the transmission line, at either side of a major road or river crossing, and to manage a change in direction.

Image 1: Example of a 500 kV transmission line structure.

Image 2: Example of a 330 kV transmission line structure.

An indicative configuration of the transmission line structures proposed to be used as part of the project are shown in Image 3.

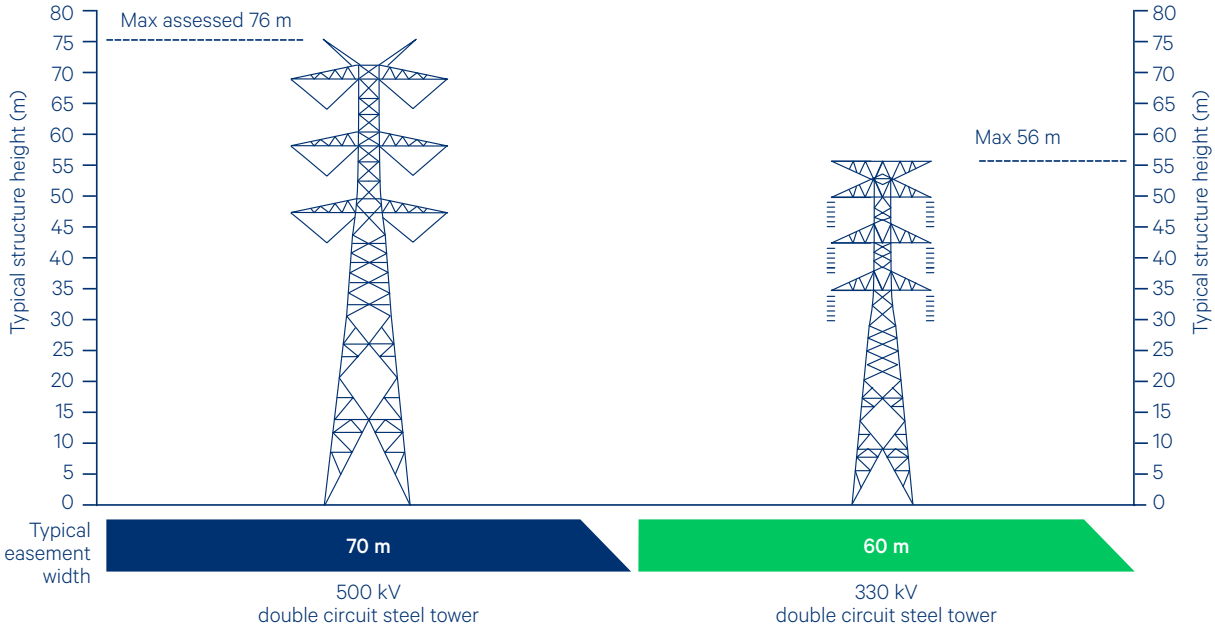

Image 3: Indicative concept transmission line structure designs

Transmission line construction

Works associated with the construction of the transmission lines would include:

- earthworks to establish construction and laydown areas
- excavation, piling, steel works and concrete pours to establish tower footings and foundations
- assembly of transmission line structures
- erection of the transmission line structures using cranes
- stringing of the conductors and overhead earth wires (OHEW) and optical ground wire (OPGW)
- installation of earthing conductors
- earthing of fences and gates (as required).

Image 4: Example of a 500kV transmission tower being assembled onsite from the EnergyConnect (NSW) project.

Stringing of the transmission lines

Following erection and securing of the transmission line structure, the transmission line would be strung by using either a ground pulled draw wire, or through aerial methods such as a helicopter or a line stringing drone (with brake and winch sites). The final methodology for stringing of the transmission lines would be determined during detailed design and construction planning in consultation with the construction contractor(s) and could include a combination of methodologies.

Image 5: Example of a stringing of a 500kV transmission tower from the EnergyConnect (NSW) project.

Construction timeframe

Indicative timeframes for construction activities associated with the transmission line structures is shown in the image below. These activities would have multiple work fronts, for example foundation works or tower erection could be occurring at several locations along the transmission line easement at the same time.

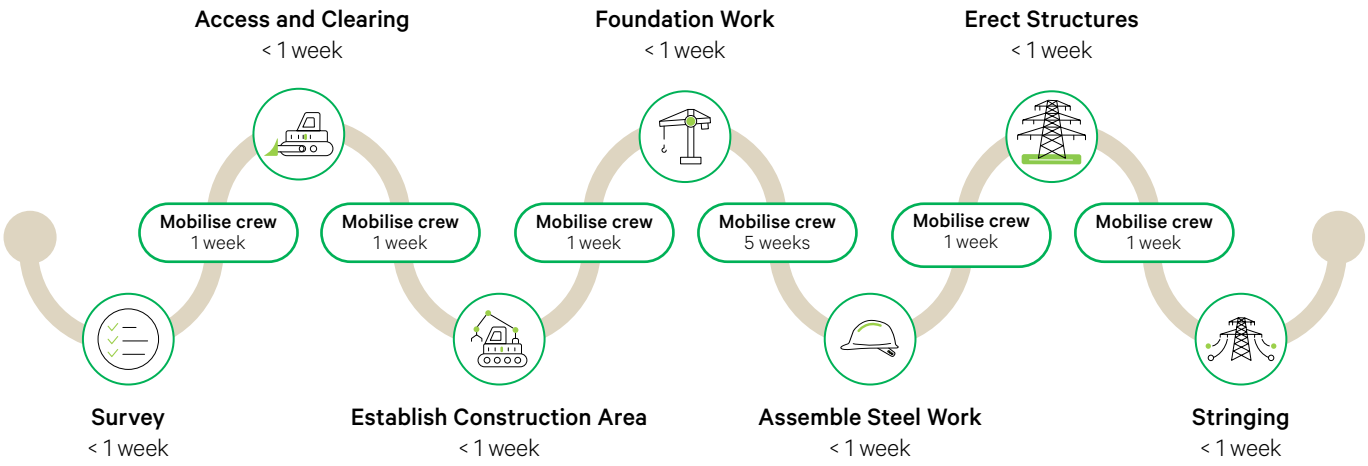

Image 6: Indicative duration and sequence of construction activities for transmission line structures

Typically, the construction timeframe for each individual transmission line structure is not long and construction noise would transition along the project alignment so that any localised noise impacts would likely be for a short time. Noise and vibration impacts during construction and operation of the transmission lines are being assessed as part of a detailed specialist study for the EIS.

Following construction, we will test the transmission lines before the project becomes operational (in conjunction with the completion of the Victorian section of VNI West). This will include testing new substation equipment and ensuring all infrastructure meets the design and statutory standards.

Detailed design for the project and the final construction methodology will provide further details of activities to be undertaken during the transmission line construction stages. These details will be developed and finalised by our delivery partners.

Access tracks

Temporary and permanent access tracks may be used during the construction and operation phases of the project to access transmission line structure locations. Existing and new access tracks will connect the project footprint to the current road network, as well as proposed construction compounds and transmission line easements. Any impacts associated with establishing and using access tracks including biodiversity, noise and air quality will be appropriately assessed within the EIS.

When considering the location of proposed access tracks, the aim is to avoid adverse impacts, by:

- using existing roads and farm tracks
- avoiding natural drainage lines and low wetland areas
- avoiding impacts to heritage and important plant community types
- minimising vegetation clearing
- balancing cut and fill earthworks.

Site restoration

Restoring and rehabilitating construction sites, including tower locations, would occur progressively and as soon as practicably possible following completion of construction works at these locations. If requested and agreed with Transgrid in advance, landowners would be able to retain facilities and construction infrastructure, such as access tracks.

Next steps

There will be ongoing opportunities for the community to provide input throughout the development of the EIS. Once all the technical assessments have been completed the EIS is placed on public exhibition. During this time, the community members will be able to view the EIS and all supporting studies and provide written submissions on the project to the Department of Planning, Housing and Infrastructure.

Connect with us

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

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