

Farming and electricity transmission

For more than half a century, Victoria's regional towns and many of Melbourne's metropolitan communities have lived and worked in and around major electricity transmission.

Transmission powerlines transport electricity from where it's generated, historically at power stations that burn coal, to homes and businesses.

Australia has not needed to build major new power transmission lines in decades, but as coal plants retire and our energy system transitions to clean, renewable energy, new transmission lines are needed.

The prospect of hosting new transmission lines has raised concerns among some regional and farming communities as well as questions about how it will impact farming and agricultural activities.

The following is a list of frequently asked questions that we've heard from communities.

Key Facts - Electricity Transmission

Q: Why are VNI West and the Western Renewables Link transmission lines needed?



The rapid retirement of major coal-fired power plants has created an urgent need for new infrastructure. Renewable energy sources are growing rapidly, and these two critical projects will build the new transmission lines needed to link renewable generators such as solar and wind farms to the power grid.

They will help ensure reliable, affordable power by boosting the ability to share energy between states, linking Victoria to the Snowy 2.0 deep energy storage project in New South Wales and helping to fill the energy supply gap with cleaner electricity as coal plants close.

Q: How high will the transmission towers be for VNI West?



The transmission towers are expected to be between 60 metres and 80 metres high in areas, similar to the towers you see driving into Melbourne. The easement for VNI West will be between 70 metres and 120 metres wide to allow access for maintenance and for safety control measures.

Q: How long will the spans be between the towers?



The distance between each tower will be roughly 400 meters, however this may vary with the terrain.

Q: Are the easements under the powerlines fenced off?



Line easements are not normally fenced.

Q: What are you allowed to do under the powerlines?



Farmers can run livestock, grow cereal and many other food crops within transmission line easements. Orchards and market gardens can be planted and tended within easements and a range of irrigation systems can also operate **with height restrictions** (noting that gun irrigation is not permitted).

In addition, heavy vehicles and equipment such as headers up to about 5m high can travel and operate under the 500kV transmission lines.

In many instances, having extra high voltage transmission lines is less disruptive for farmers compared to lower voltage towers, because the taller towers allow for bigger machinery and even irrigation to operate.

For more information on land access and farming under transmission lines check out the following links:



Landholders can find more information on easements and compensation on the TCV website: transmissionvictoria.com.au

[Electricity transmission company land access statement of expectations](#): [Essential Services Commission](#)

Q: How big is the base of the tower?



The tower will cover an area in the range of 15 x 15 metres or 20 x 20 metres, depending on the tower type and design.

Q: Will I be compensated if the transmission lines require new machinery or other related costs?



Yes, where there are impacts on property values or new transmission lines require farming business practices to be modified, such as remapping of GPS, compensation will be paid and the cost of undertaking this work will be covered by the project. We will work with landholders to minimise the impacts on existing farming and agricultural activities.

Q: How can fires be fought near transmission lines?



Ensuring communities and farms can operate safely around transmission lines is a key priority and that includes a number of measures in relation to fire risk.

Energy Safe Victoria has recently published a [guide to bushfire management and community safety around transmission lines](#).

This addresses a range of concerns, including how the companies that own and maintain transmission lines work with fire authorities to ensure that aerial fire fighting is possible in the vicinity of transmission lines.

Farm Machinery and Equipment Operation Under Transmission

The following tables outline various activities that are commonly undertaken near transmission infrastructure. The distances shown are representative of approaches taken on other 500kV easements in Victoria. They are to be used as a guide only. Once tower designs on the VNI West project have been finalised, further information will be made available to landholders in relation to the separation distances relevant to a specific property. For landholders currently hosting transmission easements, please consult your Transmission Network Service Provider (TNSP) for specific guidance.

Farming activity	500kv	Restrictions
Grain shifting augers	✓	Permitted to operate up to 5m in height without a safety assessment. Permitted to operate over 5m in height subject to a safety assessment which must be sought prior to operating. Maximum height cannot exceed 8.6m.
Boom sprayers	✓	Based on a minimum 15m ground clearance and the No Go Zone guidelines published by Energy Safe Victoria (ESV) ¹ , vehicles and equipment of up to 5m in height can travel and operate under the 500kV transmission lines without permission. Vehicles and equipment between 5m to 8.6m in height may be permitted to operate subject to a safety assessment.
Seeders	✓	Based on a minimum 15m ground clearance and the No Go Zone guidelines published by Energy Safe Victoria (ESV) ¹ , vehicles and equipment of up to 5m in height can travel and operate under the 500kV transmission lines without permission. Vehicles and equipment between 5m to 8.6m in height may be permitted to operate subject to a safety assessment. Note: A permit is not required for planting crops if earth movement change is less than 300mm in depth from the original ground profile.
Harvesters	✓	Based on a minimum 15m ground clearance and the No Go Zone guidelines published by Energy Safe Victoria (ESV) ¹ , vehicles and equipment of up to 5m in height can travel and operate under the 500kV transmission lines without permission. Vehicles and equipment between 5m to 8.6m in height may be permitted to operate subject to a safety assessment.
Construction vehicles and equipment	✓	No excavation work is to commence until a permit has been issued to work adjacent to a high voltage electrical apparatus. Note: Stockpiling of excavated material is prohibited.
Aircraft spraying	✗	Manned aircraft and unmanned aerial vehicles are prohibited within the transmission line easement due to the safety risk and potential damage to electricity infrastructure.
Drone operation	✗	Manned aircraft and unmanned aerial vehicles are prohibited within the transmission line easement due to the safety risk and potential damage to electricity infrastructure.
Autonomous vehicles	✓	Permitted to travel under the lines and operate vehicles up to 5m in height without a safety assessment. Are permitted to operate between 5m and 8.6m, subject to a safety assessment which must be sought prior to operating. Maximum height cannot exceed 8.6m
Rain gun irrigators	✗	Large water spray irrigators (i.e. gun irrigation) are not permitted to operate within the easement due to safety risks and potential damage to electricity infrastructure.
Centre pivot and lateral moving irrigators	✓	Permitted to operate up to 8.6m height (see No Go Zone restrictions) and subject to a safety assessment which must be sought prior to operating. Maximum height of machinery cannot exceed 8.6m (see No Go Zone restrictions). Note: Using pressurised water during farming activities increases the risk of electricity arcing particularly if sprayed within No Go Zone. Any such activities requires a safety assessment and approval from asset owner.
Private firefighting units	✓	The transmission towers and lines are well defined on aeronautical maps. The safe flying distance from the transmission towers is determined by the individual pilot based on their experience and regulations set by the Civil Aviation Safety Authority (CASA).
Aerial firefighting	✓	The Transmission Line Operator will work with EMV and CFA to ensure aerial firefighting can operate in the vicinity of high-voltage transmission lines. The 'safe' flying distance from the transmission towers is determined by the pilot and Civil Aviation Safety Authority (CASA) that consider the experience, comfort, and ability of individual pilot and external factors, i.e. weather conditions and wind direction, determining how close aircraft can go to both the fire and the transmission line.
GPS	✓	The flow of electrical energy through the transmission lines does not affect GPS signals. There can be a small effect on GPS signals if you are under or right alongside a tower. This is known as multipathing. It is associated with being too close to a steel structure which could be a tower, windmill, shed or any other metal structure. The effect is only noticeable within about 3m of the metal object.

Crop Farming and Livestock Under Transmission

Farming activity	500kv	Restrictions
Broadacre cropping	✓	Ground-growing crop types are allowed without requiring a safety assessment if earth movement change is less than 300mm in depth from the original ground profile. Ground-growing crops are permitted to grow within 5m of the tower steelwork, subject to obtaining permission from the TNSP, and provided access for maintenance works is maintained.
Orchards	✓	Orchards are permitted within 500kV easements.
Trees and Shrubs	✓	Trees and shrubs up to 3m in height are permitted without a safety assessment. For vegetation above 3m in height, a safety assessment is required to ensure that minimum clearances and fuel load densities are maintained. Maximum height cannot exceed 8m.
Livestock	✓	Livestock are permitted within 500kV easements.
Farms sheds	✓	Domestic garages (non-habitable), carports, silos and garden sheds MAY be granted a permit from a limited distance onto the easement subject to a number of requirements being met. These include sufficient safety clearance to towers and overhead conductors; height restrictions; construction made largely of non-flammable materials and not attached to a dwelling.
Paddock fencing	✓	Non-metallic fences- up to three metres in height. Metallic fences, or fences incorporating metallic materials must be suitably earthed and sectionalised and are subject to approval. All fixed metallic parts must be earthed and are subject to prior approval.
Stubble burning	✓	Thick smoke produced by bushfires can reduce the insulating properties of air in the vicinity of extra high voltage circuits and cause electrical flashovers to structures at earth potential. Therefore stubble burning must be controlled and monitored adequately and restrictively.

Useful resources

[Who's responsible for clearing vegetation?](#) | [Best trees to plant](#) | [Planting near powerlines](#)