

Working and farming near transmission infrastructure

March 2024

Victoria's energy system is changing. We urgently need to change our power grid to carry energy from new renewable sources and batteries across the state to Victorian homes, businesses, hospitals, schools and other vital services.

Victorians have lived, worked and farmed near major transmission infrastructure under well-established safety regulations and procedures for decades. Many farms currently co-exist with the 6,500 km of transmission lines across Victoria.

Agricultural activities are essential to our nation as well as the livelihood of regional communities. With new transmission now being

planned and developed, VicGrid wants to provide clarity to farmers about how their operations might be affected by any proposed new transmission lines.

This factsheet provides information about the different types of regulations governing high voltage transmission lines and what can and can't be done near this infrastructure.





What is a transmission easement?

A transmission easement is land reserved for the construction, maintenance and operation of transmission infrastructure. Transmission infrastructure within the easement may restrict the activities and uses that can occur on the affected land. The easement is typically recorded on the title along with any relevant conditions and associated access it gives the Transmission Network Service Providers (TNSPs).

The width of an transmission easement will depend on the operating voltage and infrastructure design. In general, the higher the voltage, the wider the easement. For example, the easement width needed for a 500 kilovolt (kV) double circuit overhead powerline is generally between 70 m and 100 m.

What can you do within a transmission easement?

Network infrastructure within the National Electricity Market is managed and operated by TNSPs. These providers play a crucial role in determining the activities permitted within transmission easements. They do this by following established construction designs and regulatory guidelines, which are enforced by the regulator, Energy Safe Victoria (ESV).

Landholders continue to have possession and use of the easement, subject to the terms and conditions of their easement agreement. They are responsible for general maintenance of the land within the easement, in the same way they are responsible for maintenance of any land they occupy. Landholders are not responsible for maintaining any transmission infrastructure. TNSPs are responsible for keeping vegetation clear of transmission lines.

Farming with transmission easements

This is a general guide to farming and agricultural operations occurring alongside construction and operation of transmission easements. Advice is indicative and can vary depending on the nature of a piece of infrastructure. Always check with the relevant TNSP to confirm site-specific guidance.

Construction



Duration: Construction duration will depend on factors such as the distance, type of terrain, need to clear vegetation and weather conditions. 100 km of transmission infrastructure will typically take about 3 years to build.



Construction impacts on grazing and cropping: During construction, the land within the easement will be partially or entirely occupied for construction works. This will temporarily limit the land from being used for other activities, including grazing and cropping. These activities may continue adjacent to the easement.

Dairy farms may be disrupted if access to milking facilities needs to be altered. TNSPs will work with landholders to ensure that impacts on dairy farming are mitigated or minimised. If effects to dairy farming cannot be overcome, compensation is an option to offset any loss of productivity.



Construction impacts to soil: Construction activities may compact and move soils – generally through movement of vehicles and equipment. TNSPs will work with landholders to ensure appropriate access tracks, either new, temporary, or existing, are used. Required temporary tracks will be designed with the landholder, including location and design. Temporary track areas can be reinstated after construction, based on landholder preference.

TNSPs are required to protect soil and silt traps may be set up to manage wash-out. Depending on the location, dust suppression methods may also be used on a cleared site.

Farming with transmission easements

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Vegetation control height and clearance:

Restrictions apply to vegetation close to overhead transmission powerlines. The exact distance varies based on voltage and distance between transmission structures. Vegetation above certain heights may require a safety assessment, however a tree clear area of at least 20 m radius is generally required for maintenance purposes. TNSPs can advise landholders of the exact height and radius restrictions for a specific transmission line.

For underground transmission easements, all vegetation must be cleared during construction.



Crops:

It is possible to grow crops beneath overhead transmission powerlines. However only low growing vegetation (typically a maximum mature height of 3 m) should be planted within an easement.

In the case of underground transmission cables, crops and rooted vegetation are typically not allowed to be planted within the easement area.



Grazing:

Grazing is allowed in transmission easements.



Irrigation:

Centre pivot and lateral moving irrigation, including end guns, can be used with some height restrictions beneath overhead transmission powerlines.

Large gun irrigators are not permitted within overhead transmission easements. There are no irrigation restrictions for underground transmission easements.

TNSPs can provide advice to landholders on the exact height restriction of irrigation for a specific easement.



Fences:

Electric and non-metallic fences are allowed within transmission easements, with height limits set by the TNSP, typically 2.5 m to 3 m. Earth filters may be needed.

Non-electrified, metallic fences or fences incorporating metallic materials or parts are also allowed with TNSP prior approval, to ensure suitable earthing.



Other building activities:

Regulations apply during construction and to the completed building. Clearance distances vary based on the type of powerline, powerline voltage and building use. TNSPs can advise landholders of the minimum clearance required for a specific powerline.



Sheds: For overhead transmission powerlines, building a shed may be possible if it meets clearance and other safety requirements.

Sheds should not be inhabited or attached to a dwelling. Metallic sheds must be earthed. Existing sheds can generally remain in place within the easement and the overhead powerline route selection and alignment will take this into consideration.

Sheds are not permitted within underground transmission easements.



Drones: Drones may be allowed within overhead transmission easements,

but only with a safety assessment and permission from the TNSP.



Operating machinery:

Machinery that does not exceed the operating height limit set by the TNSP can be used under transmission lines. Machinery that exceeds the operating height limit requires a permit from the TNSP - this includes any extendable machinery (e.g. cranes, excavators, elevated working platforms) with a maximum height above the operating height limit.

For Victoria's existing transmission network the operating height limit is 3 m. Some future infrastructure, like the Western Renewables Link, is being designed to have higher operating height limits of 5 m.



Dams: For overhead transmission powerlines, existing dams will be considered in route selection and should be able to remain.

Water storage dams can be built if they meet clearance distance requirements from conductors and towers, and do not result in ponding or water retention around towers.

Dams are not permitted within underground transmission easements.

Farming with transmission easements

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Aerial spraying: Aerial spraying cannot be carried out within an overhead transmission line easement.



Aerial firefighting: In the event of a bushfire, the TNSP will work with Emergency Management Victoria and the CFA to ensure aerial firefighting, including aerial spraying and aerial water bombing, can take place in the vicinity of transmission powerlines.



Smart farming: Transmission generally does not interfere with GPS. There can be small effects on the accuracy of readings directly adjacent to towers. Some specialist differential GPS systems may also be affected during rain events.



There are some possible impacts to smart farming technologies:

- Potential interference with soil sensors that are close to transmission towers. To avoid this, it is recommended soil sensors are relocated away from towers. TNSPs will advise on the correct distance.
- Potential interference with radio transmitters that are adjacent to the powerlines, under some conditions, like rainfall. New transmission powerline designs include interference risk assessments for existing sensitive receptors and for the most part, the risk is negligible.
- If a transmission powerline fault occurs, sensors or radio transmitters may experience temporary disruption or impact.

TNSPs will work with landholders to ensure that impacts on smart farming technologies are mitigated or minimised. If impacts cannot be overcome, compensation is an option to offset any loss of productivity.

No Go Zones around transmission infrastructure

The 'No Go Zone' initiative was introduced by ESV to prevent accidents and keep everyone safe near powerlines. TNSPs will always give landholders hosting transmission clear guidance that is specific to the infrastructure on their property.

No Go Zones for overhead transmission powerlines

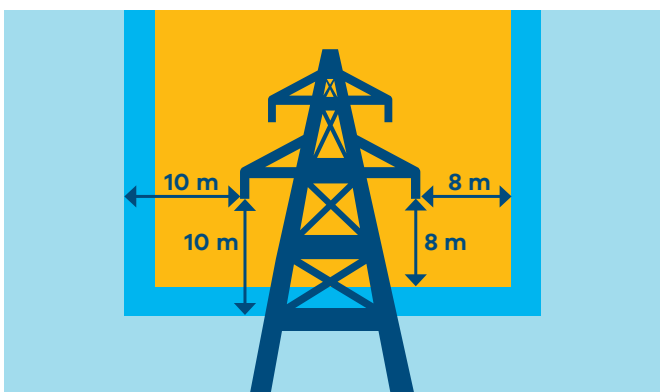
There are different No Go Zones to ensure safety around overhead transmission powerlines, depending how far you are from them.

Between 8 m and 10 m from transmission powerlines

Landholders must have a registered spotter with them. Spotters are trained in site safety procedures.

Within 8 m of transmission lines

Landholders must get permission from the TNSP that manages the tower and powerline. This is important to ensure everything is done safely.



- No Go Zone: Anywhere above and 8 m to the side and below**
- Spotter zone: Between 8 m to 10 m from powerline**
- Open area (no specific requirements for working around transmission infrastructure): From 10 m**

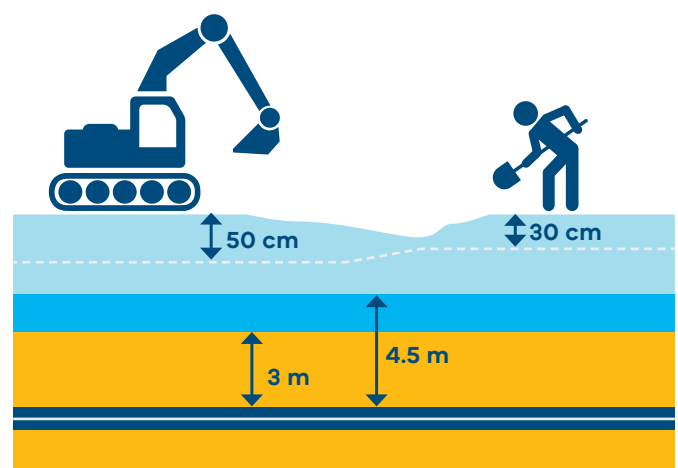
No Go Zones for underground transmission cables

There are different No Go Zones to ensure safety around underground transmission cables.

Digging below 30 cm without machinery, or below 50 cm with machinery

Requires a site evaluation and permission to work from the TNSP that manages the powerline.

Records for underground infrastructure are kept by the TNSP. They can be found on the Before You Dig Australia website byda.com.au



- No Go Zone (service over 66 kV: 3 m from a service for all machinery and persons)**
- Spotter zone (service over 66 kV): Between 3 m to 4.5 m from a service**
- Digging below 30 cm without machinery, or below 50 cm with machinery, requires a site evaluation and permission to work from the TNSP**

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