

# Living and working near transmission line easements

Central-West Orana Renewable Energy Zone

September 2022

EnergyCo is delivering the Central-West Orana Renewable Energy Zone (REZ) to provide a clean, affordable and reliable power supply for energy consumers across NSW. The REZ will initially unlock at least three gigawatts of new transmission capacity from solar, wind and storage projects within the next decade, which is enough to power 1.4 million homes.

## Overview

To enable renewable energy to be exported to electricity consumers across the state, EnergyCo is leading the delivery of new high capacity transmission infrastructure for the Central-West Orana REZ. This includes new energy hubs and overhead transmission lines.

The REZ transmission lines will be built on corridors of land known as transmission easements. Easements are essential to making sure EnergyCo can deliver secure, safe and reliable electrical infrastructure in the REZ.

This fact sheet explains what to expect when you live and work near a transmission line easement in the Central-West Orana REZ.



## What goes in an easement?

The Central-West Orana REZ requires new high voltage overhead transmission lines to enable the transfer of electricity from wind, solar and storage projects to energy consumers.

The backbone of the REZ transmission network will be powered by one or more 500 kilovolt (kV) double circuit lines, each of which requires an easement of at least 70 metres wide. This is the highest voltage used on the NSW network and has the advantage of reducing the number of circuits and lines required, therefore minimising the land required for easements.

Transmission lines which connect to renewable energy generation projects (i.e. solar, wind and storage projects) will generally be 330 kV lines and either single or double circuit. These have a minimum easement width of 60 metres for each line. The specific number of circuits and lines may vary for each generation project depending on its size.

Overhead lines in transmission easements will be supported by steel lattice towers which are between 45 and 70 metres high. The towers will generally be spaced around 400 to 600 metres apart depending on the local geography and other factors.

## What activities are permitted in an easement?

The following activities are generally permitted within transmission easements, however they may be subject to certain restrictions for safety and operational reasons:

- Agriculture and grazing
- Planting trees and vegetation
- Landscaping and paving
- Installing drainage, water and sewer pipes
- Movement of vehicles and machinery
- Parking light vehicles.

Activities which are not permitted within transmission line easements include:

- Building houses
- Erecting scaffolding
- Storing materials in industrial bins and skips
- Stockpiling excavated materials
- Storing flammable liquids or gases
- Fuelling and repairs to vehicles, plant and equipment
- Moving vehicles and machinery that exceed the permitted height
- Parking large trucks and caravans
- Loading and unloading large trucks
- Storage or detonation of explosives.



## Agricultural activities

We appreciate that agricultural activities are essential to our nation as well as the livelihood of communities in the Central-West Orana region. We are working closely with landowners as we design the REZ transmission route to understand current and future land uses and help minimise impacts to agricultural activities.

The table below outlines restrictions which may be in place for specific agricultural activities.

Activity	Requirements
<b>Aerial operations</b>	<p>Aerial activities can continue in the vicinity of transmission lines, as they are clearly visible from the air. Flying aircraft (i.e., crop dusters) need to be aware of the location of transmission lines and structures.</p> <p>Where possible we will avoid putting transmission lines where low-flying aerial operations take place.</p> <p>Drone operators will need to maintain a safe distance from transmission lines to avoid collision.</p> <p>The Civil Aviation Safety Authority (CASA) has requirements for all pilots and drone operators. We encourage you to contact CASA for specific information relating to your aerial operations. For more information, visit <a href="http://www.casa.gov.au">www.casa.gov.au</a>.</p>
<b>Cropping</b>	<p>Permitted up to 30 metres from the base of a transmission structure to provide clearance for maintenance access.</p>
<b>Livestock grazing</b>	<p>Grazing can continue as normal under transmission lines.</p>
<b>Utilities including drainage, sewer and water</b>	<p>Permitted if more than 20 metres from transmission structures and pipes are made of earthenware or plastic. Electrically conductive materials such as metal pipes must not be installed within 30 metres of tower structures.</p>
<b>Fencing</b>	<p>Metal fences should never touch a transmission structure. Fencing within or near an easement must be earthed and isolated. Further details are provided later in this fact sheet.</p>
<b>Irrigation</b>	<p>Irrigation low to the ground is generally permitted. Water streams should never be directed at transmission lines.</p>
<b>Vehicle and machinery movements</b>	<p>Vehicles and machinery passing under transmission lines must be limited to a height of 4.3 metres, unless otherwise agreed with EnergyCo.</p>
<b>Ploughing and direct drilling</b>	<p>Permitted up to 20 metres from the base of a transmission structure. This buffer is in place to ensure machinery does not disturb transmission structure earthing.</p>
<b>Planting trees and vegetation</b>	<p>Trees, shrubs or bushes must not be planted or placed within the easement.</p>



## Clearance heights under transmission lines

Vehicles and machinery can pass underneath transmission lines as long as they meet the height restrictions. In most cases, the height limit for vehicles and machinery travelling under transmission lines will be 4.3 metres.

Where landowners require the use of machinery over 4.3 metres in height, EnergyCo will consider designing taller towers on a case-by-case basis. If your land is identified for an easement, we will work with you during the easement project design process to identify any specific constraints related to your land use.

Equipment with an extendable boom, such as excavators, cherry pickers and cranes, require trained and accredited operators to work under transmission lines. For safety requirements when working near transmission lines, refer to [SafeWork NSW](#) for further information.

## Fencing

Metal fences near transmission structures can be an electrical safety hazard. This is due to the transmission line transferring voltages onto the metal fence.

Fences within or near a transmission line easement must be 'earthed' for safety reasons, which means they are connected to the ground and therefore kept at the same voltage potential as the earth. Metal fences must be at least 25 metres from a transmission structure.

Transmission easements will not be fenced. We will take into consideration the location of any existing metal fences when we design the transmission route.

We encourage landowners to contact us before installing any new fencing near a transmission easement so we can provide guidance on your specific fencing requirements.

## GPS and radio signals

The signals from Global Positioning Systems (GPS) are a much higher frequency than transmission lines and therefore should not be disrupted.

Transmission lines can interfere with radio frequencies where the signals are already weak. New transmission lines are designed to minimise this interference. This will be assessed during the project's Environmental Impact Statement and detailed design process for the REZ transmission project, with mitigations included in the design where feasible.

## Fire management

We understand the risk of bushfires in the Central-West Orana region and this is a key consideration as we plan the REZ transmission network.

Transmission lines are built to withstand most bushfire conditions. They are also designed to prevent the risk of starting fires from fallen conductors. Fire cannot travel along transmission lines as they are not made from flammable materials. Transmission lines are operated remotely and can be shut down quickly in the event of a bushfire.

To reduce the risk of fire in a transmission easement, vegetation should be kept to a minimum height and density within transmission easements. Grazing livestock can help to manage vegetation in paddocks containing an easement.

Transmission lines will not prevent aerial firefighting activities from being carried out. Transmission lines are generally clearly visible from the air even when there's smoke, so aerial firefighting can continue.

We will work with landowners during the easement acquisition process to understand individual property constraints in relation to fire management. This includes discussing any existing aerial operations and air strip locations.



## Electric and magnetic fields

Electric and magnetic fields (EMFs) are a natural part of the environment and are produced wherever electricity or electrical equipment is used. According to health authorities, including the World Health Organisation and the Australian Radiation Protection and Nuclear Safety Agency, EMFs from electrical transmission lines are not considered a risk to human health.

Further information can be found in the following resources:

- **Australian Radiation Protection and Nuclear Safety Agency (ARPANSA):** [www.arpansa.gov.au/understanding-radiation/radiation-sources/powerlines](http://www.arpansa.gov.au/understanding-radiation/radiation-sources/powerlines)
- **World Health Organisation (WHO):** [www.who.int/health-topics/electromagnetic-fields](http://www.who.int/health-topics/electromagnetic-fields).

Detailed assessment of EMFs from the REZ network infrastructure will be carried out as part of the environmental assessment process.

## Operation and maintenance

Once the REZ transmission network is operational, we will carry out regular on-site maintenance and inspections on the transmission lines. Fault and emergency crews may also attend site occasionally when required to respond to unplanned events to ensure safety and carry out repairs. Landowners will be kept informed about any maintenance activities and access arrangements.

## Development proposals

Development proposals that are within a REZ transmission easement will require approval from EnergyCo, as well as the relevant planning authority if development consent is required. EnergyCo will assess all proposals on a case by case basis, taking into account any risks to public safety and potential risks to the operation and maintenance of transmission infrastructure.

If a new development is built on a REZ transmission easement without EnergyCo's permission, it may need to be removed or relocated at the developer's expense if it doesn't meet EnergyCo's requirements.



## Mandatory requirements

The following requirements will apply to all development proposals in a REZ transmission easement:

- clear access must be maintained to transmission infrastructure for operation and maintenance
- an exclusion zone of 30 metres applies from any part of a transmission line structure, and 17 metres from the centre of a transmission line
- a height limit of 4.3 metres applies for all structures and development activities
- all metal structures must be earthed
- structures must be designed so they don't encourage climbing.



## Permitted proposals

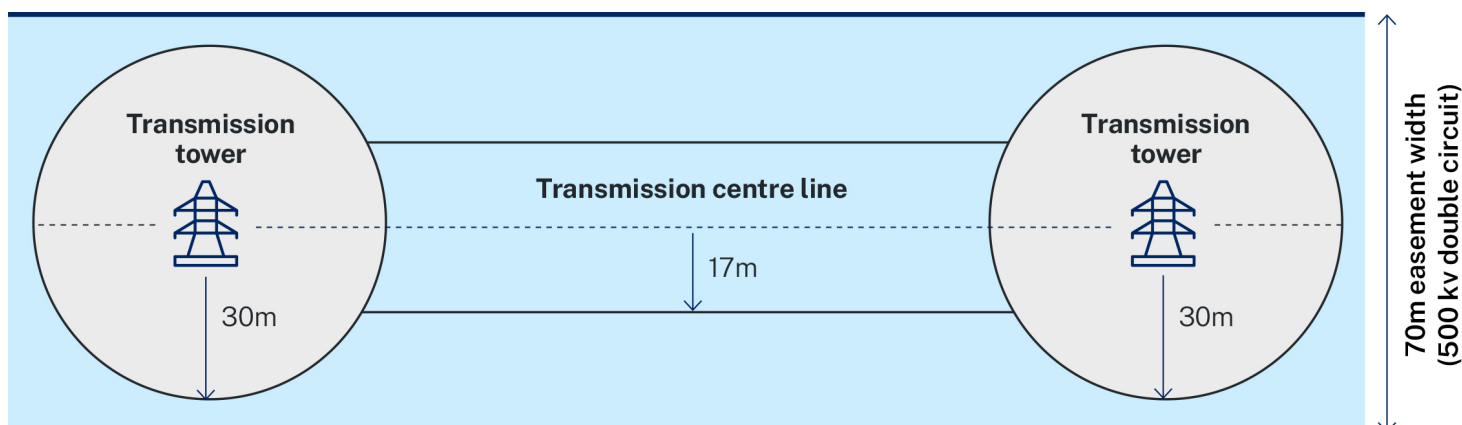
The following proposals will generally be permitted within REZ transmission easements, subject to EnergyCo's approval and adherence to the mandatory requirements:

- carports, sheds, stables, detached garages, pergolas and unroofed verandas, provided they are non-habitable
- sporting and recreational facilities, including tennis courts, basketball courts, playgrounds and exercise equipment
- plant nurseries and community gardens if mature plants are within the height limit and all fixed structures are outside the exclusion zone
- in-ground swimming pools, provided that any power connection is electrically isolated outside the easement
- lighting which is electrically isolated outside the easement
- roads and pathways
- low voltage utilities and services
- earthwork, excavation and quarrying, including the construction of dams, basins, swales, drains and channels no more than three metres deep (subject to prior consultation with EnergyCo to ensure it doesn't affect the safe operation and reliability requirements for the REZ transmission equipment).

If you're unsure if your development is permitted, please contact EnergyCo to discuss your individual circumstances.



## Development exclusion zones



Indicative only. Diagram not to scale.

## Proposals which are not permitted in REZ transmission easements

The following developments are not permitted in any part of a REZ transmission easement:

- inhabitable buildings, houses, accommodation, camp sites, facilities and offices
- above-ground swimming pools
- fixed plant and equipment.

## Subdivisions

Subdivision proposals will be assessed by EnergyCo on a case-by-case basis. New subdivision boundaries must not be located within the easement.

## Seeking EnergyCo's permission on proposed developments

When seeking permission from EnergyCo, you should include the following details:

- your contact information and details of the planning authority
- a description of the proposal, including measurements and any potential impacts to REZ transmission infrastructure
- detailed plans and/or technical drawings which are to-scale and show all relevant distances and measurements.

Planning authorities will automatically refer any development applications to EnergyCo where relevant. To avoid delays to your application, we recommend seeking EnergyCo's permission before you lodge a development application with the planning authority.

EnergyCo's permission is given as the holder of the easement only and does not constitute development approval.



## About EnergyCo

The Energy Corporation of NSW (EnergyCo) is a statutory authority responsible for leading the delivery of the REZs as part of the NSW Government's Electricity Infrastructure Roadmap. EnergyCo will work closely with communities, investors and industry to deliver the state's first five REZs.

For more information about EnergyCo, visit our website at [energyco.nsw.gov.au/about-energyco](https://energyco.nsw.gov.au/about-energyco).

## Contact us

✉ [cwo@energyco.nsw.gov.au](mailto:cwo@energyco.nsw.gov.au)

📞 1800 032 101

🌐 [energyco.nsw.gov.au](https://energyco.nsw.gov.au)

🗣️ If you need help understanding this information, please contact the Translating and Interpreting Service on **131 450** and ask them to call us on **1800 032 101**.

EnergyCo wants to hear what you think about our plans. If you have questions or want to give feedback, please get in touch with our team. You can find more information on our website by scanning the QR code or by visiting [energyco.nsw.gov.au](https://energyco.nsw.gov.au).

