Social and environmental considerations for transmission projects

Community factsheet

Managing social and environmental impacts

All transmission projects are designed to meet Australian safety standards and to assess the potential impacts – both positive and negative – on the surrounding environment and community. This involves assessing a wide range of potential impacts associated with the design, construction and maintenance of transmission infrastructure.

This factsheet summarises a selection of the potential social and environmental impacts of overhead and underground transmission projects that are commonly of interest to communities.

For more information about engagement with landholders and community view our *Community engagement in decision-making factsheet* via the QR code on the last page.

Biodiversity

The potential impacts to native plants and animals will depend on the environment where the project is located.

Therefore, transmission businesses plan to avoid and minimise potentially significant biodiversity impacts, where feasible, during the route refinement process. Any remaining impacts are investigated in the environmental impact assessment process and strategies developed to further avoid, minimise and mitigate impacts.

Transmission businesses may also be required to offset any residual impacts on biodiversity by purchasing biodiversity credits, making payments to a relevant biodiversity conservation fund or establishing conservation agreements with landholders (who commit to conservation activities on their land in exchange for financial payments). The exact amount transmission businesses must commit to biodiversity offsetting will vary depending on the scale of the project and extent of its environmental impact.

For information about biosecurity risks view our *Transmission and agriculture factsheet* via the QR code on the last page.

Overhead transmission

For overhead transmission projects, installing and constructing overhead lines can impact biodiversity through:

- Selective vegetation clearing for easements (i.e. to facilitate construction activities, electrical safety and bushfire management requirements)
- Excavation for overhead towers and access tracks.

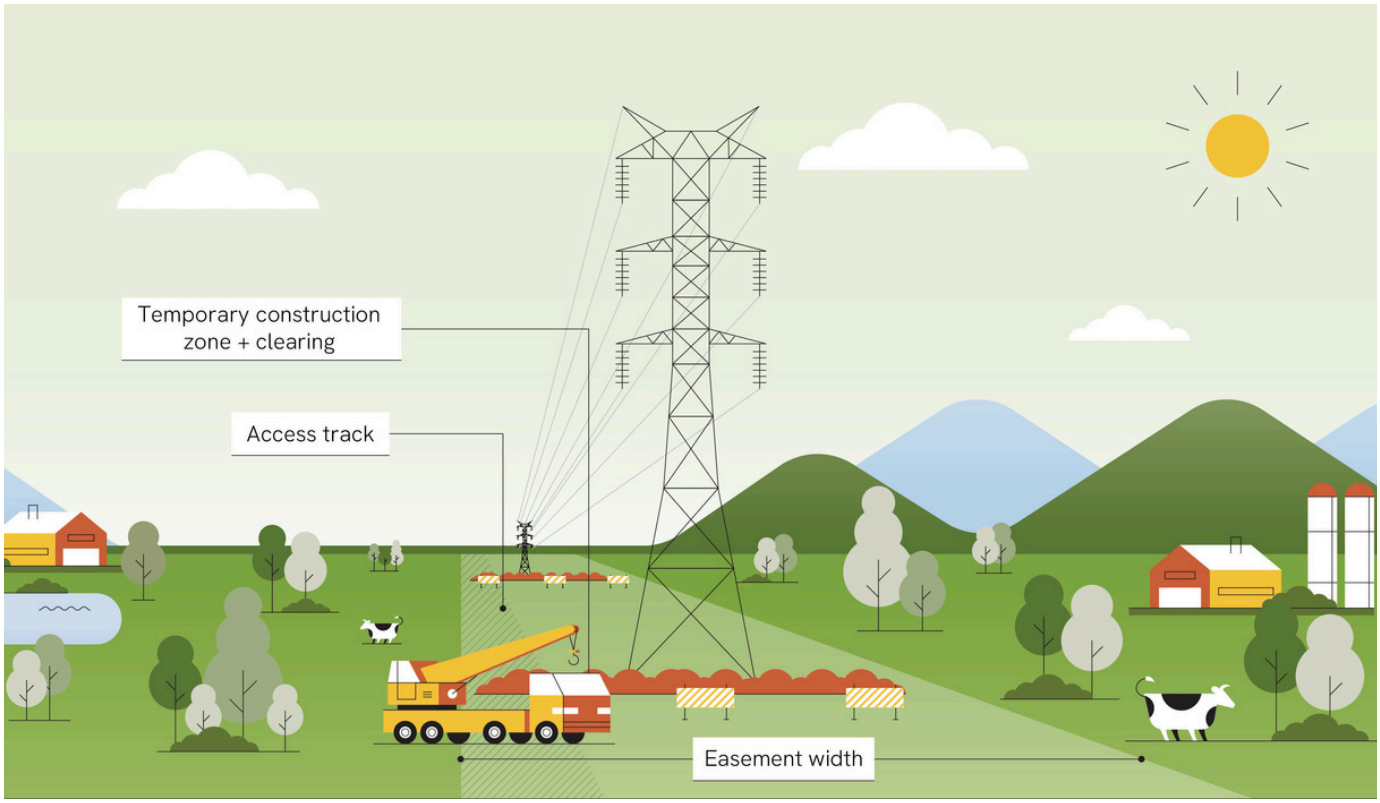
While some vegetation clearing may be necessary, in many cases appropriate vegetation can be retained within easements, providing it does not create electrical safety or bushfire risks.

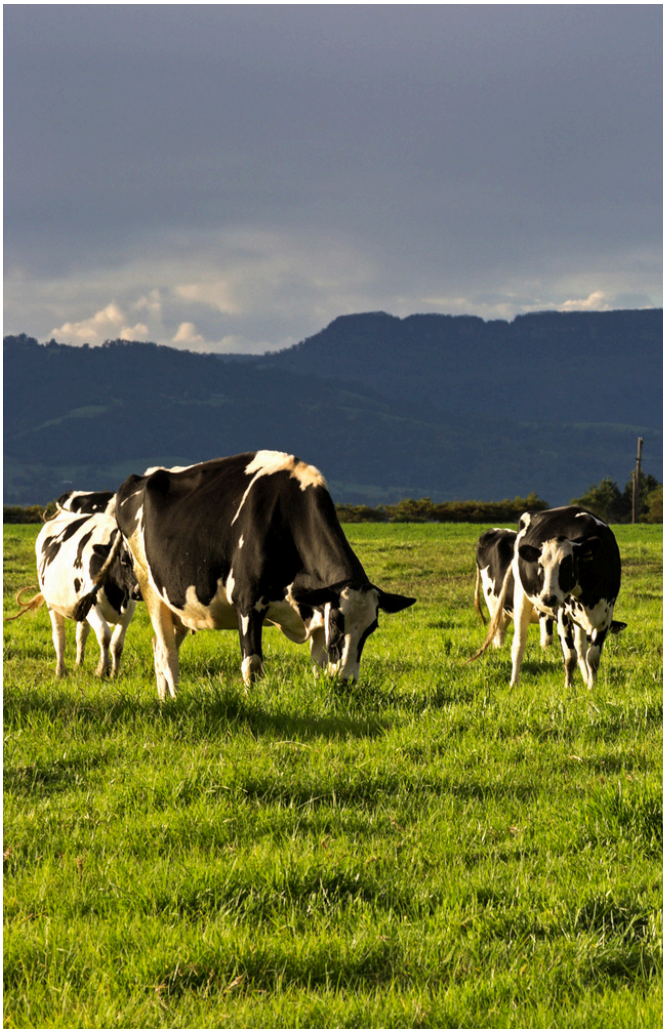
The impact of vegetation removal can be reduced by avoiding sensitive biodiversity areas and reinstating vegetation where possible (except where access roads are required).

Impacts to animals are also considered in the planning and assessment of projects, including the risk of collision and electrocution to birds and bats if this is relevant for a particular project (based on location and species in the area). This includes measures such as avoidance of migratory species flight paths during route refinement, and the addition of bird deflectors or markers on the conductors making them more visible and easier to navigate through and around for birds and bats. The wide spacing required between conductors on a transmission line generally means that birds and bats cannot physically contact two conductors at the same time, minimising the risk of electrocution.

Biodiversity impacts during the operational phase of overhead transmission projects are mainly due to vegetation management for accessing and maintaining easements.

Figure 1: Activities during construction of overhead transmission





Underground transmission

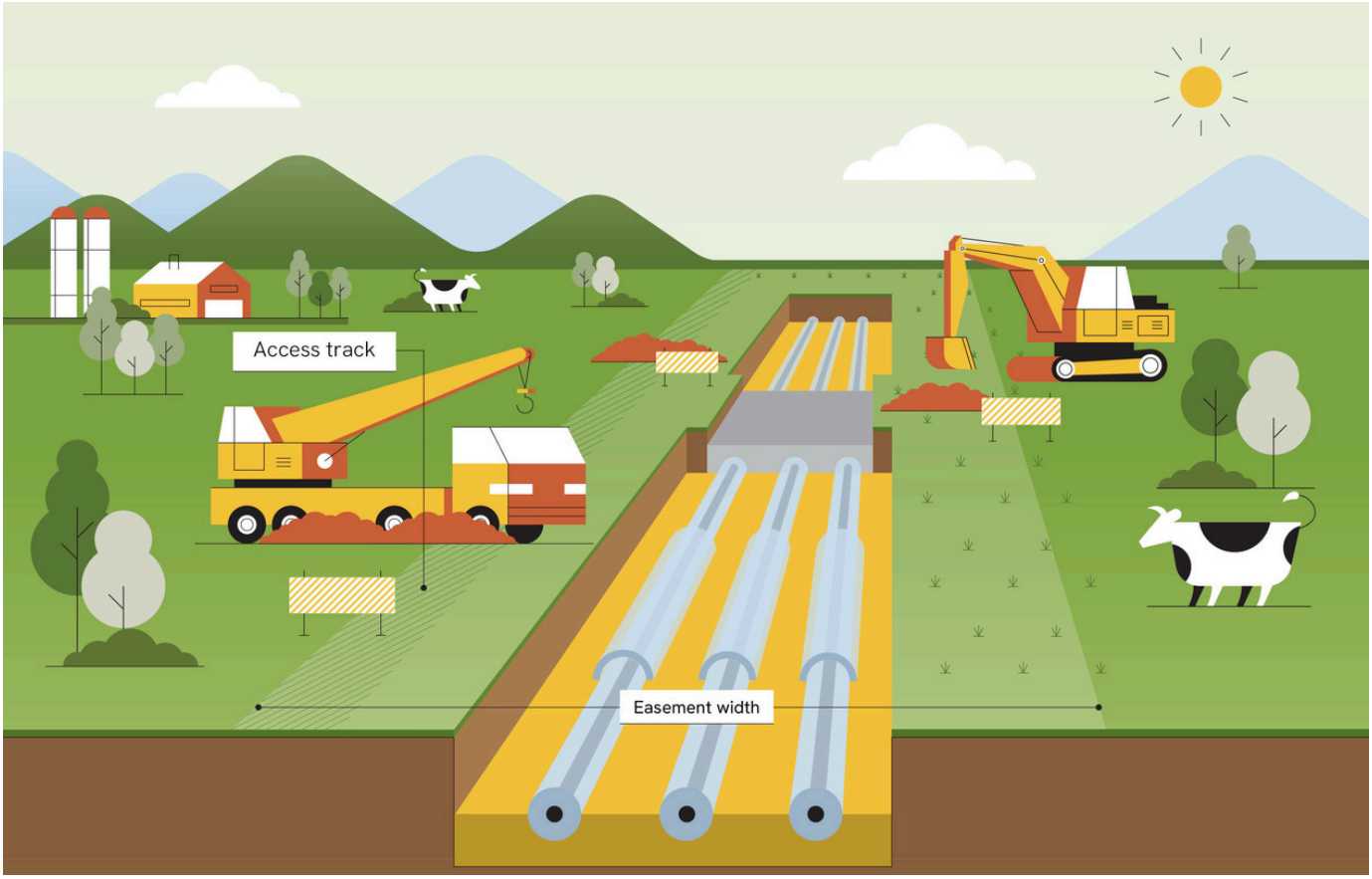
As with overhead lines, underground lines can also impact biodiversity through:

- Vegetation clearing for easements
- Excavation and trenching along the length of the route for installation of the cables, and also for access tracks.

Vegetation in close proximity to the infrastructure will need to be permanently removed, for electrical safety and to prevent tree roots from damaging the underground infrastructure. In some instances, underground transmission can affect biodiversity below-ground, such as sub-surface flora, fauna habitats, soils and watercourses. In sensitive areas such as near waterways, directional boring methods (which do not require trenching) can be used for short lengths (up to about 300 metres), to help minimise impacts.

Biodiversity impacts during the operational phase are mainly due to maintaining underground cables. Easements are required to remain clear of vegetation (excluding grasses), to ensure access for operation and maintenance purposes.

Figure 2: Activities during construction of underground transmission



Electric and magnetic fields

Electric and magnetic fields (EMF) refer to invisible areas of electric and magnetic energy around sources of electricity. EMF can be produced in nature, or by man-made sources like telephones, toasters and public transport. All transmission lines, overhead and underground, produce EMF which reduces with distance from the live conductors.

The short and long-term effects of EMF on human health have been extensively researched. Advice from the *Australian Radiation Protection and Nuclear Safety Agency*[1] is that there is no evidence of a connection between adverse health effects and exposure to EMF, from living or working near overhead or underground transmission lines.

For overhead transmission lines, the height of the electrical conductors is designed to ensure that EMF strengths at ground level are well within Australian and international guidelines. For underground transmission, burial depth and metal covers built into the cable are designed to ensure that EMF strengths are consistent with Australian and international EMF guidelines.

Landscape and character

Transmission infrastructure can impact an area's visual appeal and negatively impact how people value, use and visit an area for accessing public green space, swimming, water sports or camping. The level of change will depend on whether the transmission lines are overhead or underground, the scale of new and existing infrastructure, the resulting scale of change in landscape and how the area is valued and used.

The towers required for overhead transmission infrastructure can generally be between 40 and 90 m high and sited every 300 – 600 m along the route, potentially becoming a noticeable feature in the landscape. Vegetation is selectively cleared and trimmed along the route to reduce risk of vegetation contacting high voltage conductors. Overhead transmission projects also require additional infrastructure along the route, including access tracks and large substations at key locations.

Underground transmission can also impact an area's landscape and character. Vegetation is generally removed along the entire route (except for groundcover). Additional above ground components include access tracks, transition stations to transfer to overhead technology, large substations at key locations and converter stations (if high voltage directional current was used).

Changes in landscape and character from overhead and underground transmission projects are considered through a visual impact assessment. This process includes community consultation with landholders, First Nations groups and other members of the local community to understand how residents and visitors value and use the area and how this may be impacted by transmission infrastructure.

With careful planning and management of land use, transmission infrastructure can be strategically placed to minimise their visual and environmental impacts to ensure that the natural beauty values of the area are kept and disruption to recreational activities are minimised.

For more information about transmission infrastructure including size and descriptions of components, download our *Overhead and underground infrastructure explained factsheet* via the QR code on the last page.

1 Australian Radiation Protection and Nuclear Safety Agency, *Powerlines: Advice on whether powerlines are associated with health effects*

Housing, infrastructure and local economies

Transmission projects can boost local economies by creating jobs, stimulating local businesses, and providing long-term economic benefits through improved electricity reliability and lower electricity costs.

However, transmission projects can also bring challenges for local communities, particularly those where there are cumulative impacts from multiple projects occurring in the same region. Potential cumulative impacts may present across areas such as workforce capacity, supply chain, housing, education, health and community.

For example, the influx of construction workers for transmission and renewable projects can increase local housing demand and result in increased rental and property prices causing housing stress for existing residents in the short to medium term. The increased number of people moving to an area during construction can also create short-term pressures on local infrastructure like local roads, schools and health services.

Measures to reduce these types of impacts are considered as part of the project planning phase and may also include early engagement with contractors and renewable energy developers in the area to identify shared impacts and mitigation measures.

Mitigation measures could involve coordinated actions with local authorities to ensure there is enough availability of health and education services, transmission businesses investing in local infrastructure like road upgrades or community facilities or in some instances, transmission businesses will create their own housing stock for workers and leave this for the community once the project is completed.

Local benefit sharing

Community benefits programs are created by transmission businesses to ensure that the communities in which transmission infrastructure is built receive meaningful advantages. This might include financial contribution towards community-led initiatives, upgrades to local infrastructure/services, scholarships, or grants.

While there is not a defined amount that transmission businesses must invest in a community benefit program, the *National Guidelines for Community Engagement and Benefits for Electricity Transmission Projects*[2] advise that the benefits should be informed by communities through meaningful engagement so that they are tailored to each community's needs.

2 Energy and Climate Change Ministerial Council, *National Guidelines for Community Engagement and Benefits for Electricity Transmission Projects*

Scan this QR code or visit www.understanding-australian-transmission-projects.com to find more factsheets and resources about Australian energy transmission projects.

Made in collaboration with: Community Power Agency; Energy & Water Ombudsman NSW (Free, fair and independent); Farm Renewables Consulting; farmers for climate action; GCCN (Gippsland Climate Change Network); Justice and Equity Centre; RE-ALLIANCE

Made in consultation with: Australian Government, Australian Energy Infrastructure Commissioner

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