Powerline easements and fire

Safety is essential every day for our landholders, community, first responders and our people.

What are powerline easements?

Powerline easements are used to control activities near a transmission line to ensure public safety and security of electricity supply. An easement provides Powerlink Queensland (Powerlink) with a legal 'right of way' over a portion of land.

Powerline easements are registered on the title of affected land, but ownership of the land remains with the landholder. This means the landholder may use the land for many purposes, provided it doesn't compromise safety or conflict with easement terms and conditions.

Powerlink network

Queensland's high voltage electricity transmission network is owned, developed, operated and maintained by Powerlink Queensland, a State Government Owned Corporation. Powerlink's network extends 1,700km north of Cairns to the New South Wales border, comprising more than 15,000km circuit of transmission lines. Powerlink's transmission network is the central link in the electricity supply chain, connecting large generators to end-use customers from where it is generated through its transmission network the distribution networks owned by Energex and Ergon Energy (part of the Energy Queensland Group) and Essential Energy (in northern New South Wales).

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Where fire control activities (i.e. hazard reduction) are still considered necessary from within the easement, early advice to Powerlink will allow assessment of risks associated with conducting the burn (contact details below). This advice may result in adjustments to the planned burn. For more information on planned burns, click here: www.powerlink.com.au/planned-burns

Regardless of the outcome, **transmission lines should always be considered live.**

Powerline easements are often identified as a logical place to conduct prescribed burns or to fight wildfires, due to the comparatively lower fuel loads to the surrounding areas and removal of the upper canopy. However, fires burning beneath or near transmission lines can endanger people and animals, damage property and other objects, and have the potential to interrupt electricity supply.

It is therefore preferable NOT to attempt fire control activities near powerline easements or transmission lines.

To ensure the safety of people and the transmission network, Powerlink restricts certain activities on its easements.

A comprehensive guide to activities that are permitted, conditional or prohibited on Powerlink easements can be found at www.powerlink.com.au/co-use-form or you can call Powerlink directly on 1800 635 369 or 07 3860 2111.

Risks associated with fire and powerlines

If you are involved in fire control activities, you should be aware of the hazards and potential consequences of fires near or under powerline easements and transmission lines so you can reasonably assess the risks. Only low intensity prescribed burns should be performed on easements (i.e.<1m flame height) with an approved burning plan. If fire intensities are higher, electrical arcing can occur (see section on Flashovers), posing a risk to people nearby and electricity supply to large areas.

What are flashovers and why are they dangerous?

A flashover (electrical arc) happens when electricity, especially at higher voltages, jumps across an air gap due to the heat of the fire and smoke creating a conductive path. A flashover may occur between wires or from wires to the ground – this may be seen as a flash or heard as an explosion or loud cracking sound.

Under everyday conditions, the height of wires and their separations are designed to be entirely safe. However, the combination of dense smoke and hot gases generated by a large fire directly under or near a high voltage transmission line, can create a conductive path that can increase the distance an electrical arc can jump and therefore the potential for a flashover.

Flashovers are potentially life threatening to people standing in the vicinity of the flashover (much like when lightning strikes the ground). They can also cause damage to nearby equipment and to the transmission line and can cause possible interruptions to power supply to homes.

Safety risks

Large fires burning adjacent to or under transmission lines have the potential to:

- Create electrical arcs, known as flashovers, that can endanger people, animals and risk damage to property and other objects.
- Damage or destroy wires, insulators and supports of the transmission line.
- Interrupt electricity supply to households and industry.

Report all fires near transmission lines

If you see a fire burning underneath or near a transmission line and property or lives are at risk, ring Emergency Services immediately by calling Triple Zero (000).

Safety advice for fires near powerlines

When there is a fire close to a powerline remember:

- Keep people, equipment and vehicles **at least 25m** from powerlines and towers.
- Electricity, especially at high voltages, can 'jump' across several metres of air gap. This means that direct contact with the high voltage wire is not required to produce a potentially fatal event.
- Smoke can act as a conductor. Fires burning on or near powerline easements can greatly increase the chances of a flashover occurring.
- Don't count on rubber tyres on vehicles to stop a flashover from occurring.
- Don't stockpile, windrow or heap combustible material under powerlines.
- Exercise caution if using powerline easements:
  - To access fire locations.
  - As readymade firebreaks.
  - As a break from which to commence back burning operations.
  - As a refuge area in a firestorm.

Hazards and control methods

(Extract from the National Guidelines on Electrical Safety for Emergency Personnel, www.saiglobal.com)

Sagging wires due to failures or high temperature

- Do not directly attack fires in cleared areas beneath lines.
- Do not spray water on or near wires or insulators from the ground or air.

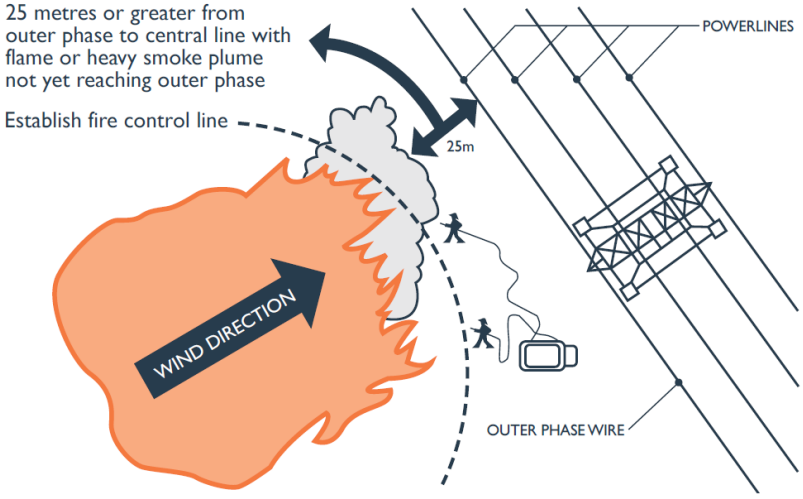
Wood pole structures may fail causing wire to fall

- Wait for fire to burn clear of the cleared areas beneath the lines before commencing mop-up operations.

Flashover may occur between wires or from wires to the ground or structures through burning vegetation (this may be seen as a flash or heard as an explosion).

- At all times treat lines as live until clearance has been given by the electricity company **on site**.
- At all times keep personnel and vehicles at a minimum of 25m clear of a head fire, or a flank fire burning under or within 25m of the powerlines (see diagram below illustrating a firefighting operation).
- When working near or under live powerlines, approach no closer than 25m to the fire edge to conduct mop-up of grass fires. Mop-up may include the knockdown of low (less than 2m high) isolated flames/spots/ smouldering logs that are not producing a convection column or heavy smoke plume. In such cases:
  - Never direct the hose stream into the powerline.
  - Never direct the hose stream into a smoke plume that is near (less than 25m from) or reaching powerlines. Keep stream no higher than a person's head height.
  - Never direct the hose stream at a burning bush or tree (more than head height) in a powerline easement.
- Bushes or trees burning in powerline easements present a real threat of creating a flashover to earth from the wires – **keep at least 25m clear**.
- When crossing powerline easements, ensure there is adequate clearance (which will vary between 3m to 8m depending on the voltage of the line) between the highest point of the vehicle (including aerials) and powerlines, avoiding areas with tall vegetation under lines.

Firefighting operation where fire and smoke plume are greater than 25 metres from transmission lines



Note: Major powerlines are critical infrastructure. They support essential community services and their de-energisation may have significant impact on public safety. Some smaller lines directly service critical sites such as sewerage, water and communication facilities.

It is therefore preferable not to attempt fire control activities near energised lines where possible.

Where fire control activities ('hazard reduction') are still considered necessary from the cleared area under lines, early advice to the Electricity Company will allow an assessment of risks associated with de-energising the line.

Reducing the risk of bushfires for biodiversity

Plants, animals and fire

Many native plants and animals are adapted to fire in the landscape. Low to moderate intensity fire can benefit species by providing new food resources, stimulating seed germination, creating important habitat features such as hollows, and stimulating vegetation growth. Therefore, maintaining a patchy mosaic of fire histories within the landscape can provide benefits to biodiversity. However, high intensity bushfires are typically detrimental to native species as they simplify the landscape and destroy existing habitat and resources. Ideally, these types of fires should be minimised within the landscape. High intensity bushfires can be reduced by conducting low intensity prescribed burns.

While prescribed burning on easements is not part of Powerlink's land management program, Powerlink works with landholders to mitigate fire risk through effective fire management planning (including fuel load assessments) and engagement activities with key stakeholders.

Managing vegetation

Management of vegetation and access tracks within and adjacent to powerline easements are essential for the safe and reliable operation of the transmission network. Vegetation management within powerline easements is collectively referred to as land maintenance.

Powerlink maintains the transmission network in a variety of ways, including focusing on the control of any incompatible vegetation by selectively applying approved herbicides and/or removal of these species. If vegetation is identified beyond the easement boundary that is considered a risk, management options will be discussed with the landholder.

Community programs

Powerlink delivers community and environment programs to build relationships and be a good corporate citizen. Powerlink engages with landholders on joint land management, including managing fuel loads and access. Powerlink has delivered several successful community and environmental programs in partnership with local councils in areas where its infrastructure is located. For example, Powerlink and Townsville City Council are working together to deliver a greening program dedicated to increasing vegetation density and improving habitat for local native wildlife. For further information on programs we are involved with go to: www.powerlink.com.au.

Further resources

- Fire and high voltage transmission line safety: www.powerlink.com.au/transmission-lines
- Powerlink Queensland activities on an easement: www.powerlink.com.au/easements
- Powerlink planned burn advice: www.powerlink.com.au/planned-burns
- Burning sugarcane near transmission lines: www.powerlink.com.au/brochures/burning-sugarcane-near-transmission-lines

Healthy Land & Water Ltd
T: 07 3177 9100 info@hlw.org.au www.hlw.org.au

Contact Us

Further information about Powerlink and our projects can be downloaded from **www.powerlink.com.au**

General Enquiries FREECALL 1800 635 369 (during business hours) and ask for Easement Maintenance
In case of emergency FREECALL 1800 353 031 (24 hours, 7 days a week)
Email Easementmaintenance@powerlink.com.au
www.powerlink.com.au |

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