Working in close proximity to powerlines, above or below the ground, has its hazards. Every year, workers die or suffer serious injuries, mostly because safe work practices around electricity have not been applied. Not only could contact with powerlines cause injury or death but costs to repair the damage could be expensive.

If you are contemplating working or operating plant near overhead or underground powerlines, you should obtain a copy of the ‘Electricity Entities requirements: Working Near Overhead and Underground Electric Lines’ document which is available at ergon.com.au/lookupandlive or energex.com.au/lookupandlive.

All machinery operators and other workers working near powerlines should be aware of their safety duties under the Electrical Safety Act 2002 and The Electrical Safety Regulation 2013 and adopt safe work practices in accordance with the Code of Practice ‘Working Near Overhead and Underground Electric lines’.

Always take care when operating around overhead powerlines.

Working in close proximity to powerlines, above or below the ground, has its hazards. Every year, workers die or suffer serious injuries, mostly because safe work practices around electricity have not been applied. Not only could contact with powerlines cause injury or death but costs to repair the damage could be expensive.
Exclusion Zone
An Exclusion Zone is a safety envelope around an overhead powerline. Exclusion zones keep people, operating plant and vehicles a safe distance from powerlines to prevent shock, electrocution and mechanical damage.

Exclusion zone measurements depend on the voltage of the powerlines, type of work being performed and qualifications of people involved. Generally, workers and their equipment must maintain exclusion zones around powerlines as follows:
- 3 metres for voltages up to 33kV
- 6 metres for voltages up to 330kV
- 10 metres for voltages up to 500kV
- 13 metres for voltages up to 300kV
- 15 metres for voltages up to 500kV
- 20 metres for voltages up to 1000kV

Exclusion zones can be reduced if the worker has been trained and approved as an Authorized Person. Contact us for information on how to become an Authorized Person.

Safety Observer Zone
A Safety Observer Zone is the area where machinery or equipment is operating where any part of the machinery or equipment COULD enter the exclusion zone. A trained safety observer MUST be used if the equipment can reach the exclusion zone.

Safety Observer
A Safety Observer or spotter is a person who:

- observs the operating plant and
- advises the plant operator if it is likely that the operating plant will enter the exclusion zone for an overhead powerline.

Safety Observers undergo specific training and must be competent to perform the role of observing, warning and communicating effectively with the plant operator. Contact us for information on how to become a qualified Safety Observer.

What to do if contact with powerlines occurs

1. The machinery or vehicle will become “live” at the same voltage as the powerlines contacted and electricity will attempt to pass through the vehicle to the ground.
2. Anything in contact with the powerlines will also become “live”, such as fences and trees.
3. A potentially dangerous electrical field will be created around anything in contact with the powerline. This field extends for approximately 10 metres around these items.

What should you do if contact occurs

1. Try to stop work and remain calm and in the vehicle until the power has been isolated and the powerlines removed. Don’t risk being electrocuted by attempting to leave the vehicle before power is disconnected.
2. Advise anyone near the incident site to stay a minimum of 10 metres from the vehicle and anything else in contact with the powerlines.
3. Treat all powerlines as if they are ‘live’.
4. Call 000 immediately to report powerlines down and a life threatening situation.

We recommend that operators of machinery practise this jump / shuffle technique on a regular basis.

If there’s an electrical fire, evacuate the vehicle immediately.

What if the person in the vehicle needs to be evacuated

An emergency evacuation is extremely dangerous and should only be attempted as a last resort, such as if the vehicle is on fire. Remember to follow the evacuation procedure so you and the person in your vehicle are protected.

1. Ensure that the vehicle is isolated with a 300m exclusion zone for a minimum of 24 hours. After this, have the vehicle thoroughly inspected for tire and mechanical damage.
2. When your vehicle contacts an overhead powerline, a massive electrical current flows through the vehicle and its tyres to earth. This can cause the tyres to explode on contact or to start burning on the inside.
3. Tyres burning on the inside creates a potential hazard where the build up of gases and heat can cause the tyre to explode at a later time, even 24 hours after the incident. Fumes from the burning rubber can potentially cause injury to anyone else in close proximity to the vehicle.
4. Ensure that the vehicle is isolated with a 20m exclusion zone for a minimum of 24 hours. After this, have the vehicle thoroughly inspected for type and mechanical damage.

All machinery operators and other workers working near powerlines should be aware of their safety duties under the Electricity Safety Act 2002 and The Electricity Safety Regulation 2013 adopting safe work practices in accordance with the Code of Practice ‘Working Near Overhead and Underground Electric lines’. If you are contemplating working or operating plant near overhead or underground powerlines, you should obtain a copy of the ‘Electricity Entities Working Near Overhead and Underground Electric Lines’ document which is available at ergon.com.au/lookupandlive or energex.com.au/lookupandlive.
Understand the electricity network

Powerlines have many different configurations ranging from multiple high voltage cables supported on large towers to a Single Wire Earth Return (SWER) system. SWER system spans can be of up to 400 metres and are particularly hazardous to pilots as cables and poles can be difficult to see.

Buildings such as houses and sheds are likely to have power connected through overhead structures. Roads may also provide a convenient path for powerlines. By identifying at least two poles, a pilot can gauge the path of the cable. Insulators on poles generally run in the same direction as the cable and may assist in identifying the number of cables and their direction. Understanding how to read powerline hardware on utility structures is a core skill for low-level flying crews.

More information

Our Community Safety Team is available to discuss any questions relating to electrical safety legislation and requirements.

Call 1300 736 349

Network customer service 13 74 66
7.00am - 6.30pm, Monday to Friday

Faults only 13 22 96
24 hours a day, 7 days a week

Life-threatening emergencies only
000 (Triple zero) or 13 16 70
24 hours a day, 7 days a week

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Practice safe work habits

- Conduct a pre-flight briefing and do a pre-flight reconnaissance.
- Apply appropriate flying techniques.
- Maintain situational awareness for other pilot and crew.
- Read the physical structure indicators, e.g., poles and insulators and identify verbally all structures if flying with others.
- Know the location of powerlines on and around the property or the area you are flying in.
- Consider weather conditions.
- Guard against deviating from low-flying routes and areas that have been previously checked for powerlines and other cables.
- Cross over powerlines at poles or structures rather than mid-span where possible.
- Be aware of reduced powerline heights resulting from damage, often indicated by uneven cables, excessive sag or slack stays.
- Stay well clear of damaged powerlines and report damage immediately on 13 22 96.
- Install cable markers where low-level flying operations regularly take place.
- Provide ground barriers to warn crew of the presence of powerlines and electrical infrastructure, where appropriate.
- Ensure all new members of the crew are inducted on the risks so they understand potential electrical hazards with powerlines.

What to do if contact with powerlines occurs

- Follow your pilot’s training if contact with powerlines occurs. Be aware that there is an elevated risk of fire from fuel in an electrical accident.
- Assume that powerlines or cables are ‘live’, even if they are not sparking.
- Don’t touch overhead powerline cables.
- Call Triple Zero (000) immediately to report powerlines down and a life-threatening situation.
- Stay inside the cabin, unless it is unsafe to do so. Occupants should not leave their aircraft until the power is switched off and they have been given the all clear by an authorised Ergon Energy employee.
- Keep bystanders at least 10 metres away from the aircraft and anything else in contact with the powerlines. A potentially dangerous electrical field will be created around anything in contact with the powerline.

If immediate evacuation of aircraft is necessary:

- Access your escape route and check for fallen powerlines.
- Jump well clear ensuring you land with your feet together. Be careful not to stumble or fall and don’t touch the aircraft and the ground at the same time.
- Jump or shuffle away with your feet together until you are at least 10 metres clear of the aircraft, powerlines or anything else in contact with them.
- Once clear DO NOT go back to the aircraft for any reason.
- Don’t try to be a hero. Never approach, attempt to rescue or allow others to approach an aircraft in contact with powerlines.

Marking electrical assets

Aircraft warning markers

Cable markers should be installed where regular low-level flying operations take place. Refer to AS 3891. The marker’s colour should be chosen for visibility and contrast with the surrounding background.

Markers of different colours may be used to provide contrast when viewed in different directions or conditions (e.g., white and orange alternated).

More information on powerline markers can be found in our Marking overhead powerlines and electrical assets brochure.

Pole marking

Painting the lower section of the pole up to 2.4 metres above ground with white paint can also provide a visual indication of structures.

Contact us on 13 74 66 for safety advice about marking powerlines and poles on your property.

Responsibilities

The responsibility for marking overhead powerlines, cables and structures should be as follows:

(a) The person requesting planned low-level flying operations (e.g., the land owner) is responsible for requesting installation of markers.
(b) The pilot or pilot’s delegate should be satisfied as to the need for and effectiveness of markers prior to commencing low-level operations.
(c) Aerial markers should only be installed, maintained or removed by Ergon Energy.

More information
Our Community Safety Team is available to discuss any questions relating to electrical safety legislation and requirements.

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Overhead warning markers

Ergon Energy has a range of overhead warning markers that can be installed to help identify overhead powerlines in areas where machinery is frequently operated.

Painting poles

Painting the lower section of the pole up to 2.4 metres above ground can also provide a visual indication of structures to help avoid accidental contact.

More information on our policies for painting poles can be found at ergon.com.au/paintingpoles or call 13 74 66 for advice.

Aircraft warning markers

Cable markers should be installed where regular low-level flying operations take place. Refer AS 3891–2008 Air navigation - Cables and their supporting structures - Marking and safety requirements.

The colour of the markers should be chosen for visibility and contrast with the surrounding background. Markers of different colours may be used to provide contrasts when viewed in different directions or conditions (e.g., white and orange alternated).

Responsibilities

The responsibility for marking overhead powerlines, cables, and structures should be as follows:

- The person requesting planned low-level flying operations (e.g., the land owner) is responsible for requesting installation of markers.
- The pilot or pilot’s delegate should be satisfied as to the need for and effectiveness of markers prior to commencing low-level operations.
- Aerial markers should only be installed, maintained or removed by Ergon Energy.

Contact us for safety advice on 13 74 66 about marking powerlines and painting poles on your property.
Look out and Live

Always be on the lookout for overhead powerlines when flying.
Every year, families are shattered by the loss or injury of loved ones who come into contact with overhead powerlines. Place this sticker in a prominent position on your plane’s dashboard so that it reminds you to take care around powerlines.