

be energy safe

Working safely near overhead powerlines

Office of the Technical Regulator



In order to manage the hazards associated with working in proximity to powerlines, there are clearance distances around powerlines that apply in South Australia.

It is important to take these distances into account when designing structures or planning to work near powerlines as it may affect the work practices or the use of equipment or structures such as scaffolding.

Cranes and elevating machinery

The *Electricity (General) Regulations 2012* are administered by the Office of the Technical Regulator. For safety reasons, minimum safe distances from powerlines, including clearances for machinery, vehicles or vessels with an elevating component or shear legs, are prescribed by the Regulations. These prescribed distances apply from the closest part of the machinery, including its load, to the closest conductor of the powerline, at all times. See the Machinery column of Table 1. Prescribed distances are dependant on the voltage of the powerline which must be correctly identified.

In addition to the requirements of the Regulations, *Australian Standard AS2550 – Cranes, hoists and winches – Safe use*, describes the operation of cranes and elevating working platforms in proximity to powerlines. This Standard provides general guidance regarding safe working practices for machinery near powerlines, with clearances depending on whether the work is conducted with or without a spotter. See the Cranes column of Table 1.

Minimum safe clearance with risk assessment

To work to the prescribed distances of the Regulations, you must also be able to show that you have allowed for any likely movement (wind effects, mechanical/hydraulic, swinging of crane loads) of both the powerline and the machinery, including operator error. The clearance distances

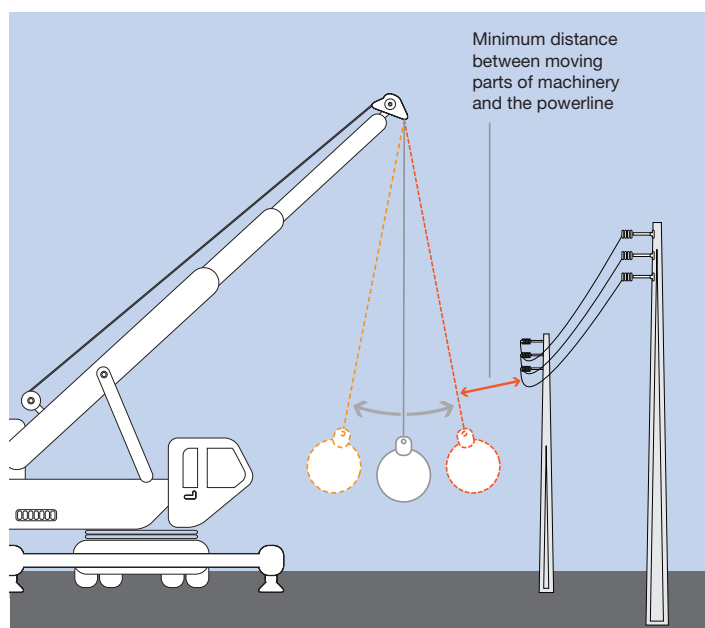


Image 1: Possible movement of powerlines and machinery must be taken into consideration

prescribed by the Regulations are absolute clearances that cannot be breached at any time. Any breach of the prescribed clearances could put you and others in immediate danger of electric shock.

In order to operate machinery with an elevating component such as cranes, elevating work platforms and earthmoving equipment such as excavators, to the minimum clearances prescribed by the Regulations as shown in the Machinery column of Table 1, the following safety requirements (in accordance with the principles of AS2550) should be applied.

- (a) The voltage must be identified; and
- (b) A spotter (competent person who is suitably qualified by experience, training, or both with the sole duty of observing and warning against unsafe approach of the crane, its lifting attachments or its load to powerlines) carries out spotting duties at all times; and
- (c) A documented risk assessment is carried out before any work commences, in consultation with all relevant parties involved in the work; and
- (d) The electricity network operator is notified before commencing work; and
- (e) Any conditions specified by the electricity network operator or Technical Regulator are complied with.

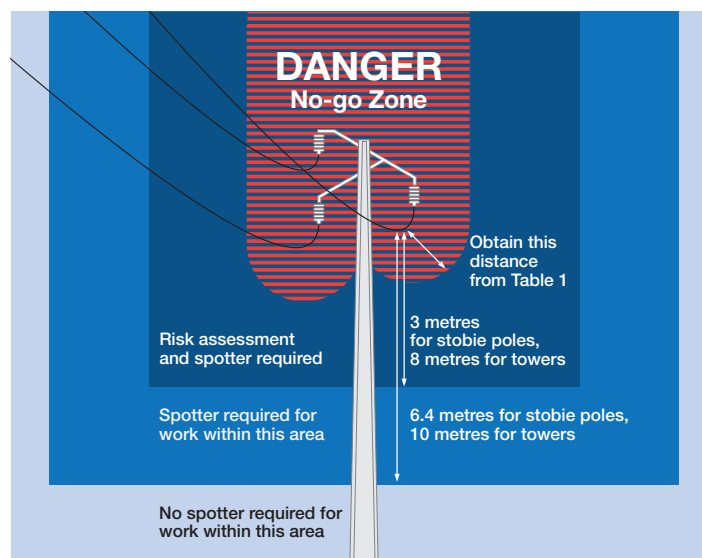


Image 2: Clearance zones for operating machinery in proximity to powerlines. No ceiling on clearance zones (see Note 1).

Note 1: Special situations – lifting above powerlines may be acceptable in some situations subject to the following conditions:

1. Alternative work methods being explored as a first preference; and
2. Conditions (a) to (e) above being complied with; and
3. For voltages ≤ 1000 V ac (low voltage) – notification to the Office of the Technical Regulator; or
4. For voltages > 1000 V ac (high voltage) – obtaining written authority from the operator of the electricity infrastructure (usually SA Power Networks) and notification to the Office of the Technical Regulator.

Contacts:

SA Power Networks (Builders & Contractors Line) – 1300 650 014

Office of the Technical Regulator – 8226 5500

Safe Approach Limits for People

In addition to the minimum clearance distances set out in the *Electricity (General) Regulations 2012* for machinery and structures, there are safe approach limits for people working near powerlines as shown in Table 1 below (light green column).

The minimum safe approach limit is measured from the closest conductor on the powerline to the closest part of the person or an object held by the person.

Subject to a documented risk assessment taking into account the movement of tools, materials and structures, it is possible to use reduced approach limits as shown in Table 1 below (dark green column).

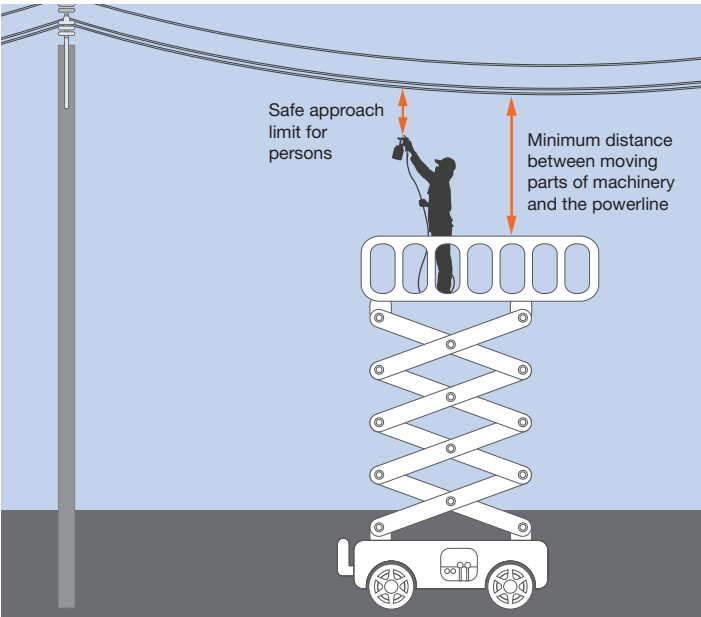


Image 3: Using tools in proximity to powerlines

It is important when planning to carry out work near powerlines that the approach limits are taken into account. They may affect the work practices you need to use.

Scaffolding

The *Electricity (General) Regulations 2012* prescribe the legal clearances to powerlines from structures, which includes scaffolds. These clearances are dependent on the voltage of the powerline. This recognises that the higher the voltage, the more dangerous it is to work close to the powerlines, and therefore requires greater clearances. These clearances are shown in the Buildings column of Table 1.

Australian Standard AS/NZS 4576 – *Guidelines for Scaffolding* may in some situations define different clearances than the Electricity Regulations. This Standard uses the same clearances for all voltages and recommends that where practical the powerlines be de-energised when erecting scaffolds in close proximity to powerlines.

You must ensure that no part of the scaffold, persons, or other equipment or materials can breach the safe approach limits (discussed above), especially during the erection of the scaffold.

If these clearances cannot be achieved, it will be necessary to contact the electricity supply authority (usually SA Power Networks) to make arrangements for the safe completion of the works. This may require a Network Access Permit to be issued.

In some circumstances the clearances specified in AS/NZS 4576 may be less than those prescribed in the Electricity Regulations, in which case the prescribed distances of the Regulations must be complied with. Please refer to the ‘Building safely near powerlines’ brochure for more information on safe clearances for scaffolding.

| | Cranes | | Machinery | Safe Approach Limits | | Buildings and Structures, including Scaffolds | |
|--------------------|--|------------------|---|---|---------------------------------------|--|--------------------|
| | AS 2550.1 Crane Code. (Approved Code of Practice) Earthmoving machinery and Elevating Work Platforms | | Electricity (General) Regulations 2012 Schedule 5, Table 1 – Distance to operation of machinery, vehicle or vessel with elevating component or shear legs | Electricity (General) Regulations 2012 64(3) Safe Approach Limits | | Electricity (General) Regulations 2012 Schedule 1, Table 1 | |
| Voltage (in volts) | No Spotter | Spotter required | Risk assessment and spotter required | Approach limit – normal persons | Approach limit – with risk assessment | Horizontal direction | Vertical direction |
| 240 | 6.4m | 3.0m | 1.0m | 3.0m | 1.0m | 1.5m | 3.7m |
| 415 | 6.4m | 3.0m | 1.0m | 3.0m | 1.0m | 1.5m | 3.7m |
| 7,600 | 6.4m | 3.0m | 1.5m | 3.0m | 2.0m | 3.1m | 5.5m |
| 11,000 | 6.4m | 3.0m | 1.5m | 3.0m | 2.0m | 3.1m | 5.5m |
| 19,000 | 6.4m | 3.0m | 1.5m | 3.0m | 3.0m | 3.1m | 5.5m |
| 33,000 | 6.4m | 3.0m | 1.5m | 3.0m | 3.0m | 3.1m | 5.5m |
| 66,000 | 6.4m | 3.0m | 3.0m | 4.0m | 4.0m | 5.5m | 6.7m |
| 132,000 pole | 6.4m | 3.0m | 3.0m | 5.0m | 5.0m | 15m | NA |
| 132,000 tower | 10.0m | 8.0m | 3.0m | 5.0m | 5.0m | 20m | NA |
| 275,000 | 10.0m | 8.0m | 4.0m | 6.0m | 6.0m | 25m | NA |

Table 1: Clearance distances from powerlines—to be taken from the position of the closest conductor

Network Access Permits

A Network Access Permit is a written document that you sign on receipt and hold while powerlines are turned off, or otherwise made safe. The powerlines will only be re-energised after you sign and return the permit to the network operator. The permit, and any conditions attached, must be explained to you before you sign it. Contact SA Power Networks Builders and Contractors line on 1300 650 014 or visit www.sapowernetworks.com.au for information on obtaining a Network Access Permit.

Tiger Tails

When working near overhead powerlines, whether using machinery such as a crane or erecting a scaffold, it is recommended that you contact SA Power Networks to have 'Tiger Tails' installed on the low voltage powerlines. These 'Tiger Tails' are a visual indicator only and do not reduce the prescribed safe working clearances.

Determining the voltage and type of powerline

Find out the voltage of the powerlines by:

- visiting sa.gov.au/energysafe
- contacting the Office of the Technical Regulator on 8226 5500
- contacting SA Power Networks on 1300 650 014.
- High voltage powerlines are those of more than 1,000 V (1 kV) of electricity. Low voltage powerlines refer to lines of 1,000 V or less.

Images 4 and 5 below shows common types of powerlines in South Australia.

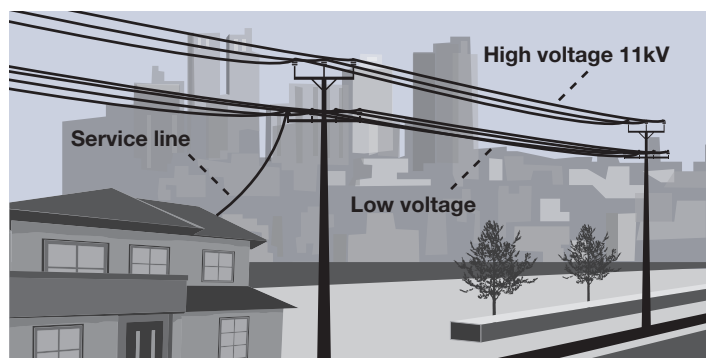


Image 4: Typical powerlines in built up areas

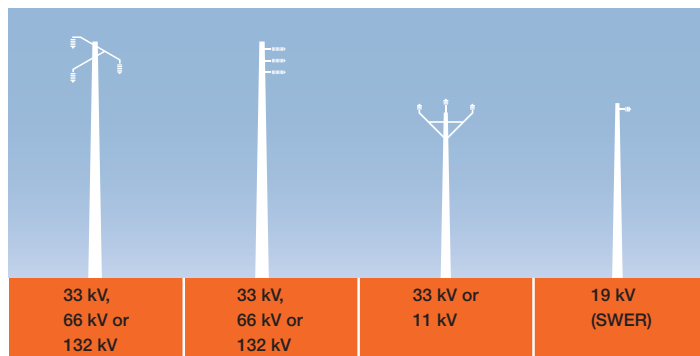
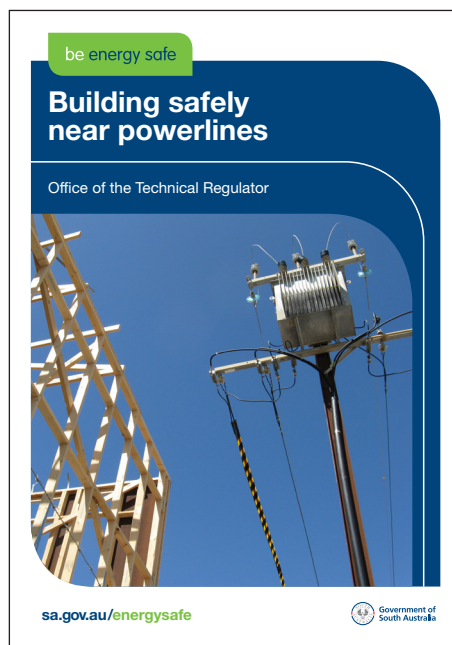


Image 5: Common powerlines in South Australia

Related information

See our 'Building safely near powerlines' brochure for information on safe clearance distances and more safety tips.



This information is provided to offer general guidance only on working safely near overhead powerlines, and does not purport to cover all situations, or any particular situation, or to outline a complete list of procedures that must be followed. It is not to be taken as a statement of law or legal advice, and must not be construed to waive or modify any legal obligation. The Government of South Australia will not be liable for any injury, damage or loss of any kind sustained by any person that arises directly or indirectly from reliance upon any information contained herein or source of information referred to.

For more information

Online: sa.gov.au/energysafe

Email: dsd.otr@sa.gov.au

Phone: 08 8226 5500



**Government of
South Australia**