



Government
of South Australia

Department for Transport,
Energy and Infrastructure



WORKING SAFELY NEAR OVERHEAD POWERLINES

There are many hazards associated with working in proximity to powerlines. In order to manage these hazards, the clearance distances to powerlines that apply in South Australia are outlined in this brochure.

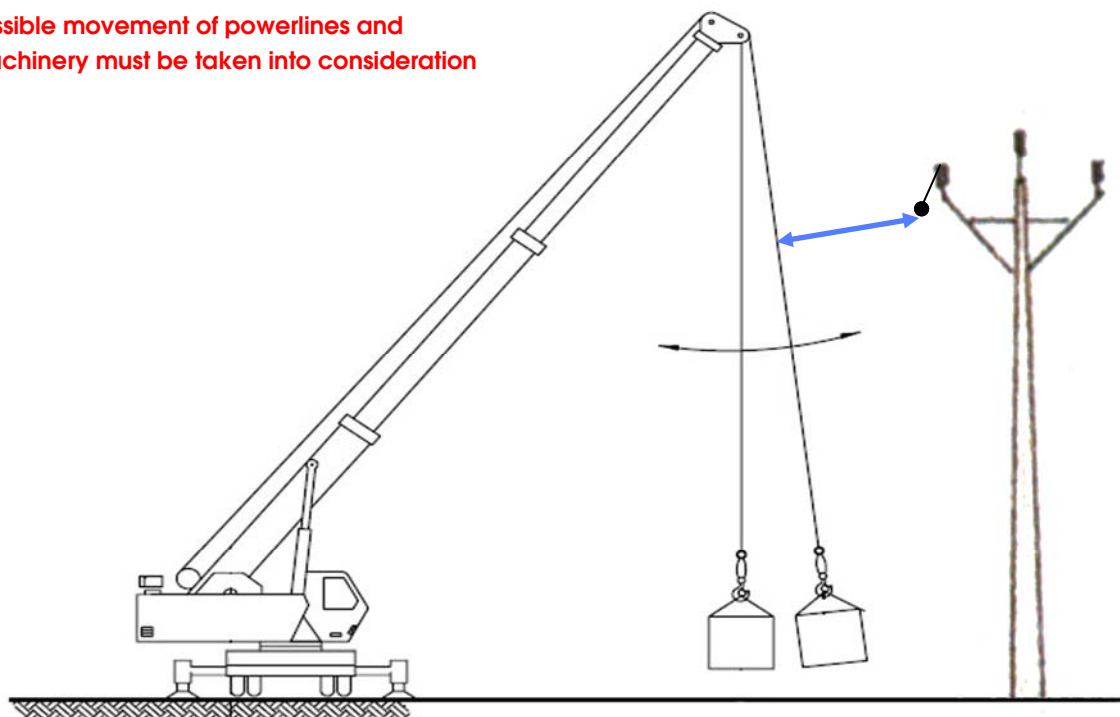
Cranes and Elevating Machinery

The *Electricity (General) Regulations 1997*, under the *Electricity Act 1996* are administered by the Office of the Technical Regulator. To protect people and property, minimum safe clearances from powerlines, including clearances to the operation of machinery, vehicle or vessel with an elevating component or shear legs, are prescribed by the *Regulations*. It is important to understand that 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 column 2 of Table 1 (blue column). Prescribed distances are **dependant on the voltage** of the powerline and you must ensure that the voltage has been correctly identified.

In addition, Australian Standard *AS2550—Cranes, hoists and winches—Safe use*, describes the operation of cranes and other 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 Column 1 of Table 1 (grey column).

To work to the prescribed distances, 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 prescribed by the *Regulations* are **absolute** clearances that **cannot be breached** at any time. **Any breach of the prescribed clearances puts you, and all those on your site in immediate danger of electric shock.**

Possible movement of powerlines and
machinery must be taken into consideration



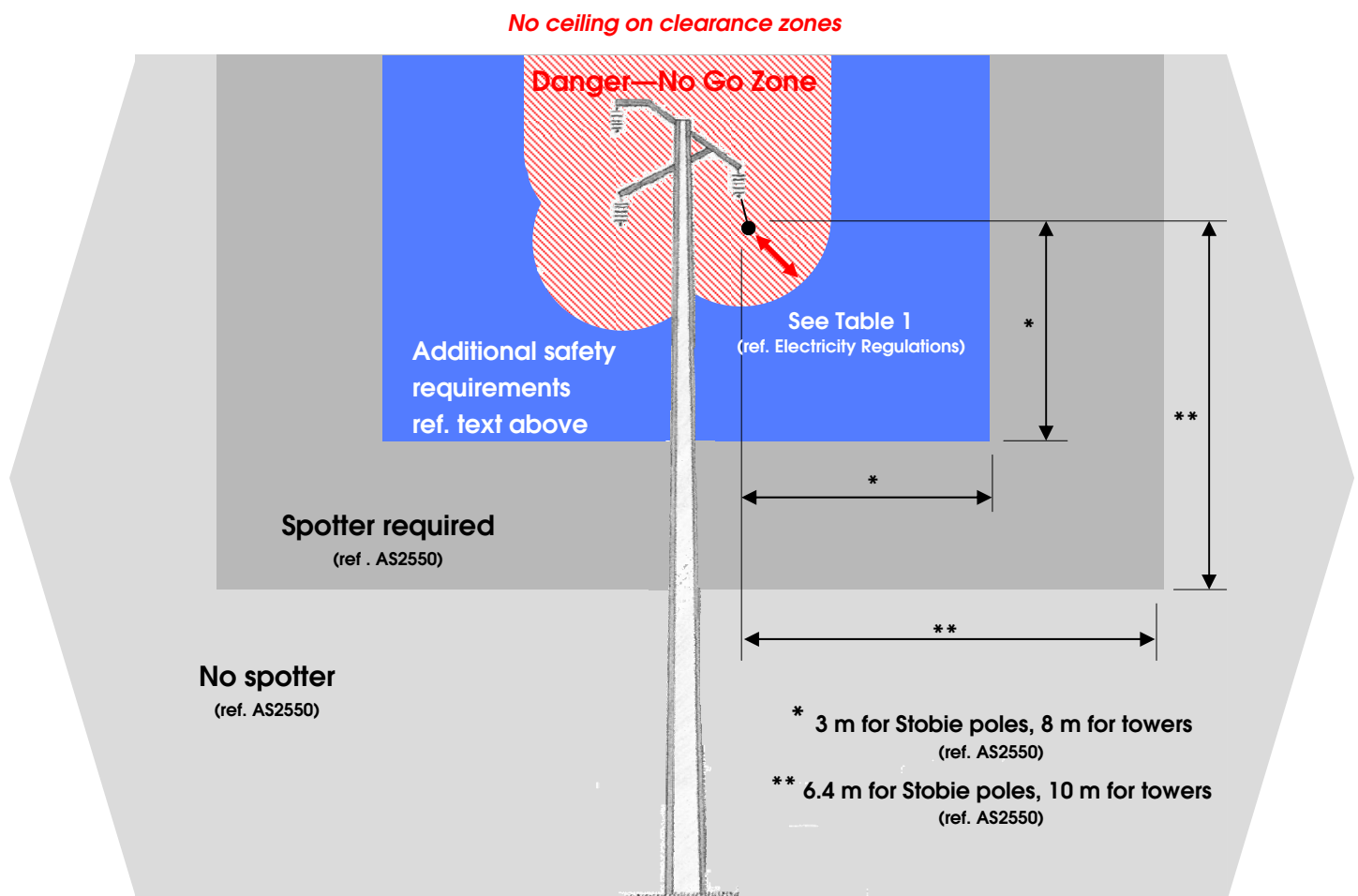
— Machinery clearance

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In order to operate machinery with an elevating component, such as cranes, excavators and elevating work platforms, to the minimum clearances prescribed by the *Regulations* as shown in the figure below (blue column, 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 (whether 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.

Clearance zones for operating machinery in proximity to powerlines



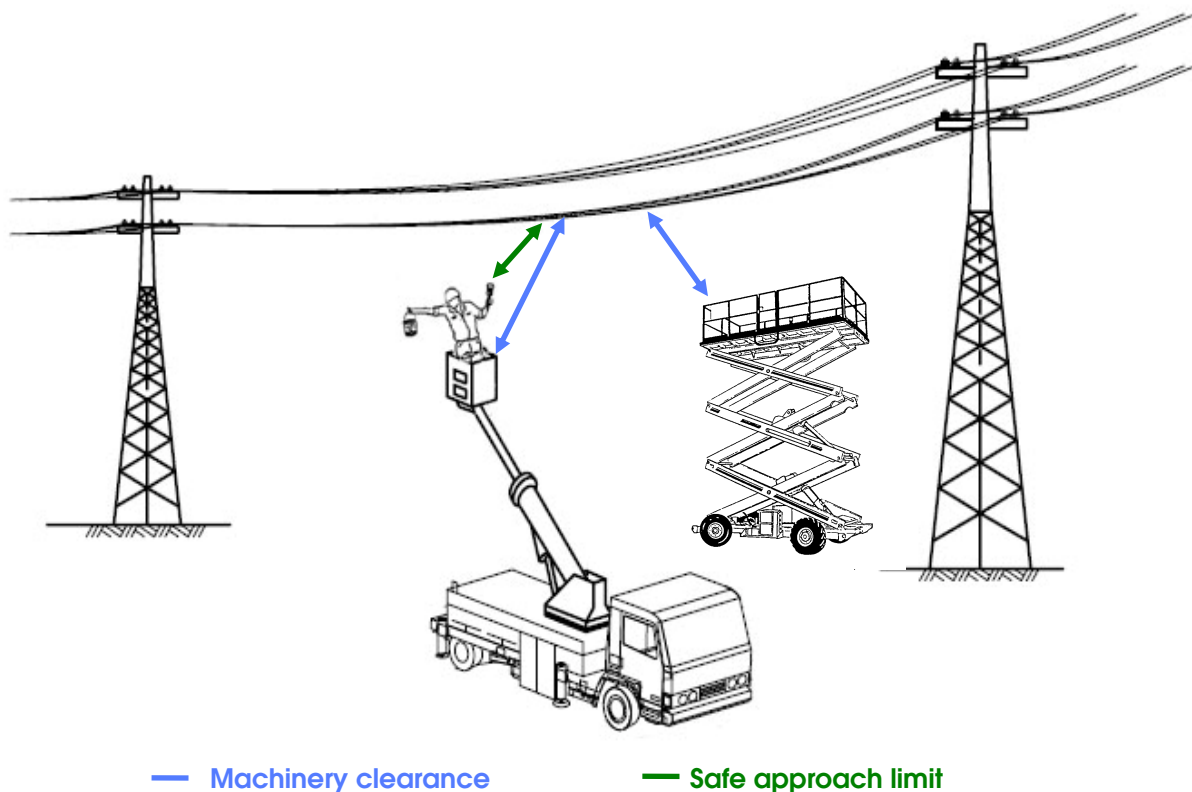
Working above powerlines is not permitted without written authority from the operator of the electricity infrastructure (usually ETSA Utilities).

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Safe Approach Limits

Safe approach limits are prescribed in the *Electricity (General) Regulations 1997* to protect people working in proximity to powerlines. These are separate, and in addition to, distances prescribed for buildings and machinery. These distances include any article of clothing worn by the person and any conductive object held or carried by the person. See column 3 of Table 1 (green column). It is important to take these distances into account when planning to carry out work near powerlines, as it may affect the work practices you need to use or the location of equipment or structures such as scaffolding.

Using tools in proximity to powerlines



Scaffolding

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.

The *Electricity (General) Regulations 1997* 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. Be aware that this is the **minimum clearance** for the final position of the scaffold. These clearances are shown in column 4 of Table 1 (orange column). 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 ETSA Utilities) 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 **must** be complied with.

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

Please refer to text for application of clearance distances

All distances are in metres

Voltage (in volts)	Cranes and Elevating Work Platforms <i>AS 2550.1 Crane Code (Approved Code of Practice)</i>		Machinery <i>Electricity Act/Regulations Schedule 6 – Distance to operation of machinery, vehicle or vessel with elevating component or shear legs</i>	Safe Approach Limits <i>Electricity Regulation 23A (3) Safe Approach Limits</i>		Buildings and Structures, including scaffolds <i>Electricity Regulations Schedule 2 Table 1</i>	
	No Spotter	Spotter	Bare Conductors	Equipment and Manually Operated Tools	Power Operated Tools	Horizontal Direction	Vertical Direction
240	6.4	3	1.0	1.0	3.0	1.5	3.7
415	6.4	3	1.0	1.0	3.0	1.5	3.7
7600	6.4	3	1.5	2.0	3.0	3.1	5.5
11 000	6.4	3	1.5	2.0	3.0	3.1	5.5
19 000	6.4	3	1.5	3.0	3.0	3.1	5.5
33 000	6.4	3	1.5	3.0	3.0	3.1	5.5
66 000	6.4	3	3.0	4.0	4.0	5.5	6.7
132 000 (pole)	6.4	3	3.0	5.0	5.0	15*	N/A
132 000 (tower)	10.0	8	3.0	5.0	5.0	20*	N/A
275 000	10.0	8	4.0	6.0	6.0	25*	N/A

*To be taken from the centreline of the powerline

See Regulations for clearances from insulated conductors

Network Access Permits

If it is not possible to maintain prescribed clearance distances, the electricity network operator (usually ETSA Utilities) must be contacted to obtain a **Network Access Permit**. The Network Access Permit is a written document that you sign on receipt and hold while powerlines are turned off, or otherwise made safe, until 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 ETSA Utilities Builders and Contractors line on 1300 650 014 or visit www.etsautilities.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 ETSA Utilities to have 'Tiger Tails' installed on the low voltage powerlines. These 'Tiger Tails' are a **visual indicator** only and do not warrant reduced working clearances.



FURTHER INFORMATION

For further information visit:

www.technicalregulator.sa.gov.au

Or call the Office of the Technical Regulator on (08) 8226 5500

Regulations under the Electricity Act 1996 are available from:

www.legislation.sa.gov.au



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