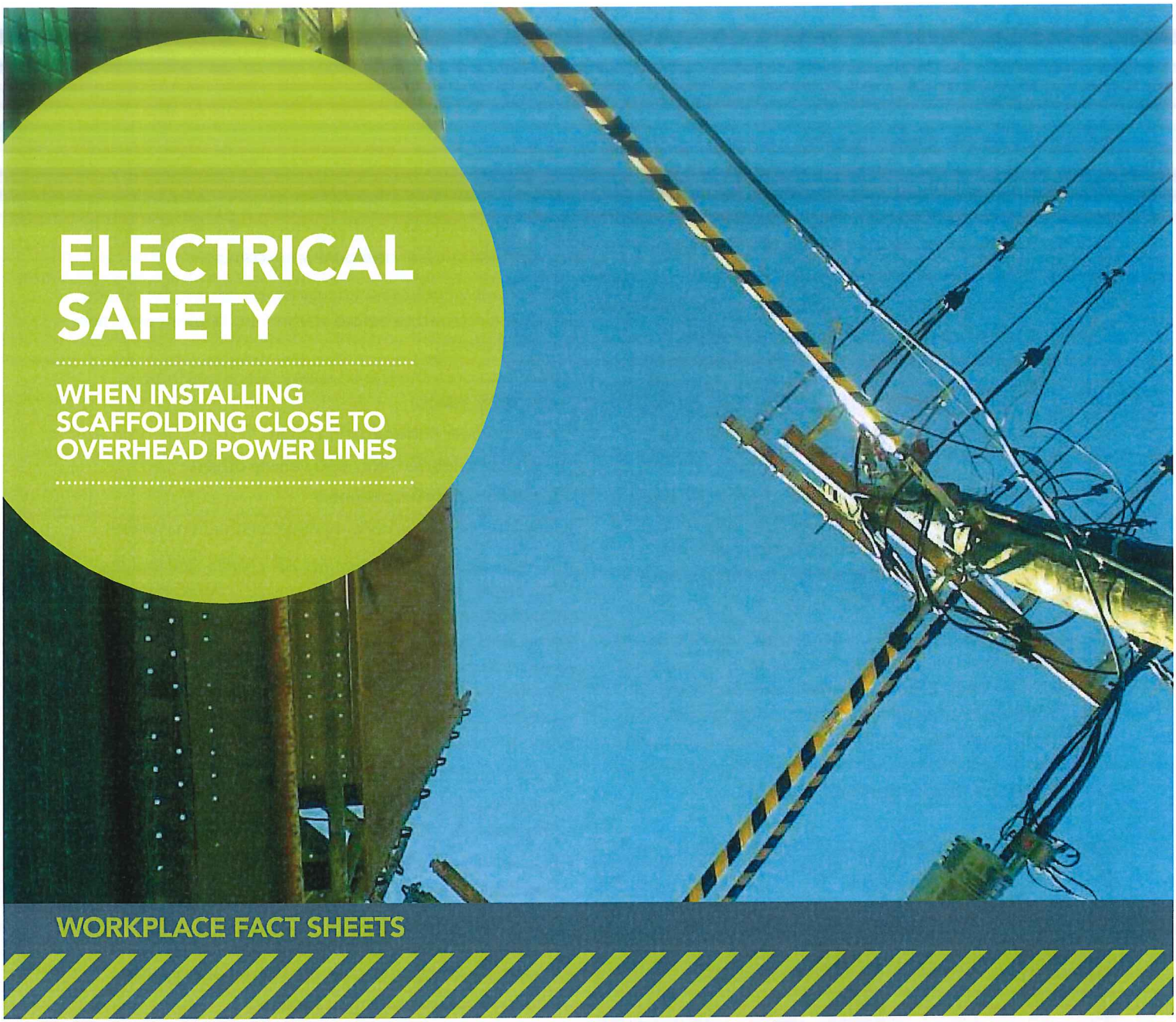


ELECTRICAL SAFETY

WHEN INSTALLING SCAFFOLDING CLOSE TO OVERHEAD POWER LINES

WORKPLACE FACT SHEETS

INFORMATION FOR DEVELOPERS, BUILDERS, CONTRACTORS AND ACCREDITED SERVICE PROVIDERS (ASPs)

SAFETY ALWAYS COMES FIRST

At Endeavour Energy, safety is our highest priority. We are fully committed to maintaining the safety of electricity workers, our customers and the broader community.

This factsheet is one of a series we've produced to help tradespeople stay safe when working in close proximity to power lines.

Call 131 081 and put safety first.
www.endeavourenergy.com.au

Endeavour Energy

STAY CLEAR. STAY SAFE.

Endeavour Energy's overhead power lines operate at up to 132,000 volts and this electricity can 'arc' (jump) across considerable distances. So it's essential to maintain a safe distance when erecting scaffolding near cables.

In this fact sheet you'll find details of recommended distances between scaffolding and different types of power line. Complying with these guidelines will help employees and contractors in the building and construction industries avoid potentially fatal electric shocks. Arcing and direct contact can also cause fire and substantial damage to plant and equipment.

If asset relocation is considered as a safe option, an asset relocation application is required to be submitted to Endeavour Energy. The asset relocation application is available from our website www.endeavourenergy.com.au/ournetwork/networkconnections

Where Endeavour Energy has accepted your application, an offer for standard connection service (subdivision and asset relocation) will be provided, and assets may be relocated or removed by developers who fund and arrange for the design and construction works under the contestable works framework. If you still require more information, speak to our customer service representatives on **133 718**.

FURTHER SAFETY READING

Other important safety information can be downloaded from our website: www.endeavourenergy.com.au

The following Endeavour Energy brochures and fact sheets should be referred to before starting any relevant work near electrical assets:

- Where to draw the line on safety clearances from electricity assets
- Working near underground cables
- Electrical safety for high load vehicle drivers
- Electrical safety for plumbers
- Electrical safety for building and construction workers

The Work Health and Safety Act 2011 (WHS Act) and the Work Health and Safety Regulations 2011 (WHS Regulations) require organisations to maintain safety in the workplace. WorkCover inspectors may inspect compliance with this requirement and if breaches occur, can impose significant penalties on an organisation and/or individuals. Additional guidance and reference can be found in the following Safe Work Australia Publications:

- Work Health and Safety Act 2011 (WHS Act)
- Work Health and Safety Regulations 2011 (WHS Regulations)
- Safe Work Australia publication – Code of Practice: **Construction work**
- Safe Work Australia publication – Code of Practice: **How to manage work health and safety risks**
- WorkCover NSW Industry Safety Standard – Erecting, Altering and Dismantling Scaffolding
- ISSC 32 – Guide for Network Operators to Provide Information to the Construction Industry for the Use of Cable Covers Working near Overhead Power Lines
- WorkCover Code of Practice Publication – Work Near Overhead Power Lines

HOW TO STAY SAFE WHEN ERECTING SCAFFOLDING NEAR POWER LINES

The following requirements for the erection of scaffolding have been developed by Endeavour Energy and WorkCover. They are designed to help construction workers stay safe when operating in the vicinity of power lines up to and including 33,000 volts.

01 WORKCOVER REQUIREMENTS

Construction workers must comply with the requirements contained within the WorkCover Code of Practice – Work Near Overhead Power Lines ('the Code'). (WorkCover of NSW Publication No. 1394)

02 BEST PRACTICE AND GOOD COMPLIANCE

Construction workers must complete a written risk assessment, have safe work method statements and engage in safe systems of work in accordance with the Code.

03 SAFE DISTANCE

The safe approach distance of 4000mm (4 metres) in accordance with table 1 of the Code should be maintained at all times from all conductors.

04 PRE-ERECTION

Erecting scaffolding within 4 metres distance of live overhead conductors is not permitted. Overhead conductors must be isolated and made safe by Endeavour Energy before the installation of scaffolding if clearance of 4 metres from power lines cannot be maintained at all times.

05 POST-ERECTION

Once scaffolding, including an impenetrable barrier (hoarding) as described in the Code is in place, the conductors may be re-energised, with safe approach distances reduced as shown in the diagram on page 5.

06 ALLOWING FOR MOVEMENT

Scaffolding must be erected in a way that prevents any movement towards the overhead conductors. Sag and wind movement of the conductors must be taken into account when determining safe approach distances.

07 BEFORE REMOVAL

The removal of scaffolding within 4 metres distance of live overhead conductors is not permitted. Overhead conductors must be isolated and made safe by Endeavour Energy before dismantling scaffolding if clearances of 4 metres or greater to power lines cannot be maintained at all times.

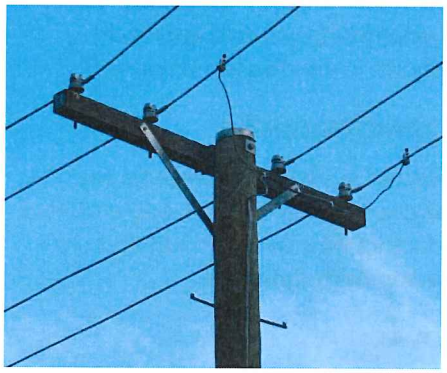
For power lines with voltages greater than 33,000 volts, Endeavour Energy must assess and provide site specific requirements.

IDENTIFICATION OF POWER LINE VOLTAGES

The public is required to refer to Endeavour Energy for any work where there is an intention to erect scaffolding within 4 metres of power lines.

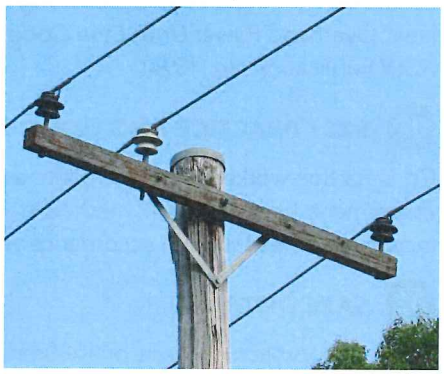
Endeavour Energy will assess and provide the necessary measures to be taken in writing, where required.

However, the following description of power line types may assist with consideration of impacts and assessing risks when planning a development.



Low voltage (0.16/1kV) bare distribution mains

Low voltage (0.6/1kV) aerial bundled conductors (ABC) distribution mains



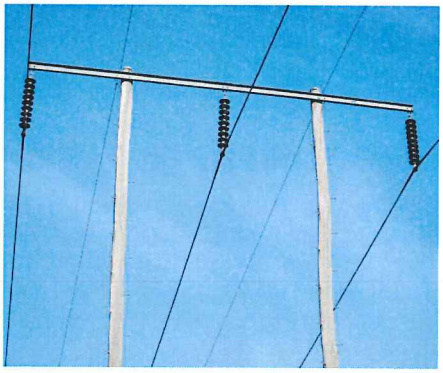
High voltage 11,000V bare distribution mains

High voltage 11,000V covered distribution mains

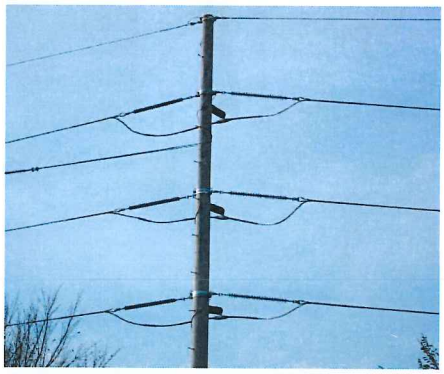
High voltage 11,000V aerial bundled conductors (ABC) connected to bare distribution mains and underground cable

High voltage 33,000V transmission bare mains

High voltage 66,000V transmission bare mains



High voltage 132,000V transmission bare mains



High voltage 132,000V transmission bare mains

NOTE: Visually the rating of the bare mains can be determined by counting the number of insulating discs (sheds) used for suspending the mains on the poles (e.g. 33,000V – 3 porcelain discs, 66,000V – 5 porcelain discs and 132,000V – 9 porcelain discs).

WHAT'S THE SAFE DISTANCE?

Where metallic scaffolding or associated components are likely to come within 4 metres of existing power lines – under worst possible conditions of conductor sag and movement due to wind (blowout) – the precautions in **Table A** apply during erection and dismantling.

Before erection or dismantling, Endeavour Energy may require a range of control measures including de-energisation, short circuiting and earthing, issuing written authorities, installation of cable covers and re-routing of cables.

Once the scaffolding has been erected the conditions of **Table B** apply.

TABLE A

MINIMUM PRECAUTIONS TO BE TAKEN DURING THE ERECTION AND DISMANTLING OF SCAFFOLDING

Voltage	Conductor	Clearance (Horizontal) (Max Blowout must be added)	Safety Requirements
Low Voltage (Including Aerial Services and Aerial street lighting circuits)	Open Wire (Bare[1])	Less than and up to 4.0m	De-energised, Cable Covers[2], and appropriate authority issued by Endeavour Energy
		More than 4.0m	Appropriate risk assessment
	ABC	Less than and up to 0.3m	De-energised, Cable Covers[2], and appropriate authority issued by Endeavour Energy
		More than 0.3m and up to 1.0m	De-energised, Cable Covers[2], and appropriate authority issued by Endeavour Energy or Cable Covers[2] and SafetyObserver
		More than 1.0m and up to and including 4.0m	Cable Covers[2] and appropriate risk assessment
High Voltage (up to and including 33kV)		Up to and including 4.0m	De-energised and appropriate authority issued by Endeavour Energy
		More than 4.0m	Appropriate risk assessment
High Voltage >33kV		Endeavour Energy to access and determine site specific measures	

TABLE B

PRECAUTIONS TO BE TAKEN ONCE SCAFFOLDING IS ERECTED

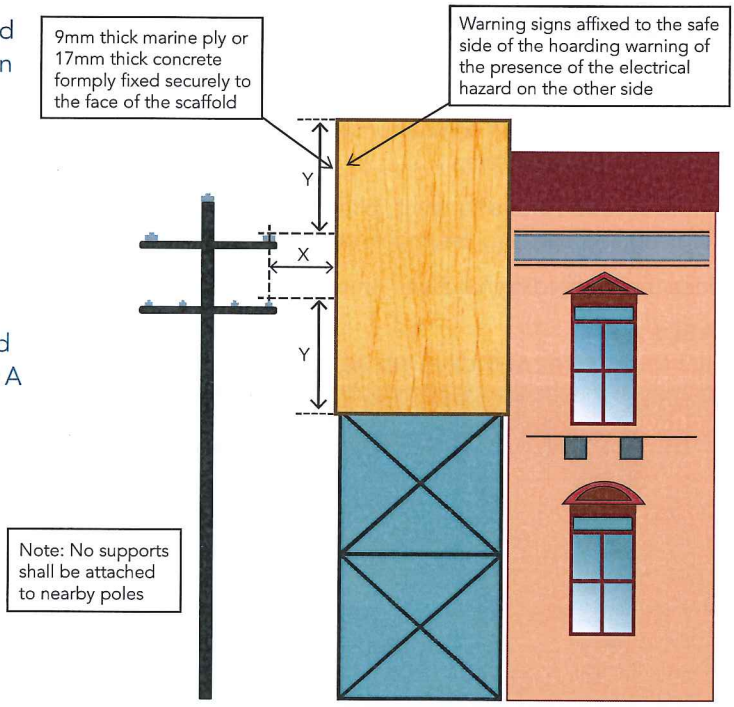
Voltage	Conductor	Clearance (Horizontal) (Max Blowout must be added)	Safety Requirements
Low Voltage (Including Aerial Services and Aerial Switch Wires)	Open Wire (Bare[1])	Less than 0.6m	De-energised, Cable Covers[2], and written authority, issued by Endeavour Energy
		Greater than 0.6m	Cable Covers[2] and hoarding with internal signage
	ABC	Less than 0.1m	De-energised, Cable Covers[2], and written authority issued by Endeavour Energy
		Greater than 0.1m up to 0.3m	Cable Covers[2] and hoarding with internal signage
		Greater than 0.3m	Cable Covers[2]
High Voltage up to and including 33kV	Open Wire (Bare[1]) and CCT	Less than 1.5m	De-energisation, hoarding with internal signage and written authority by Endeavour Energy
		Greater than 1.5m	Hoarding with internal signage
	ABC	Less than 0.3m	De-energisation, hoarding with internal signage and written authority by Endeavour Energy
		Greater than 0.3m	Hoarding with internal signage
High Voltage >33kV	Bare[1]	Endeavour Energy to access and determine site specific measures.	

Notes: 1. A PVC insulated cable is considered to be a bare conductor, **2.** Endeavour Energy is to be contacted to arrange for Cable Cover/Tiger Tails installation.

HOW DO HOARDINGS AFFECT THE SAFE DISTANCE REQUIRED?

Here you can see details of the minimum clearances allowed between erected scaffolding and a LIVE power line when an appropriate hoarding is used to provide an impenetrable barrier to tools, materials and equipment. The clearances shown are horizontal safety clearances and vertical mechanical clearances from the conductors. This diagram should be read in conjunction with the other requirements of these safety guidelines.

Distance 'X' is the worst case clearance, only applicable to the erected scaffolding. Conductor blowout must be added to establish all site specific safety clearances. Refer to Table A for clearances to be maintained during the installation and dismantling of scaffolding.



Voltage	Conductor Type	Minimum Clearance for 'X'	Minimum Clearance for 'Y'
Low Voltage (Including Aerial Services and Aerial Street light circuits)	Open Wire (Bare)	0.6m	2.0m
	ABC	0.1m	1.0m
High Voltage up to and including 33kV	Bare and CCT or CC	1.5m	2.0m
	ABC	0.3	2.0m
High Voltage >33kV	Bare	Refer to Endeavour Energy	

OTHER REQUIREMENTS FOR HOARDINGS

01 The gaps between fitted sheets of plywood should not exceed 3mm.

02 No exposed cut or drilled holes are permitted in the sheets of plywood.

03 The installer is responsible for attaching plywood to the scaffolding, and for ensuring that the arrangement can sustain an appropriate wind load.

04 Warning signs should be affixed to the safe side of the hoarding warning of the presence of the electrical hazard on the other side of the hoarding and advising that the hoarding should not be removed.

05 A competent person from the builder's company should visually inspect the hoarding (and if applicable, the enclosure) on a daily basis to ensure the hoarding and enclosure are in a satisfactory condition and remain impenetrable.