Guidelines for the

management of vegetation near power lines

Information for:

Local Government bodies

Landowners / occupiers

State Government agencies

Department of **Consumer and Employment Protection**
Government of **Western Australia**
Energy*Safety*

Contents

Preface

Fires or electrical hazards and accidents can occur if vegetation is not controlled or cleared around overhead electricity power lines, resulting in serious risks to people and property and significant costs to the community.

The purpose of this document is to clarify the responsibilities for controlling and clearing vegetation around overhead electricity power lines. This management of vegetation includes pruning, cutting, trimming and removing vegetation as well as disposing of the vegetation that has been pruned, cut, trimmed or removed.

Energy*Safety* as the state's energy industry technical and safety regulator has developed these guidelines in conjunction with Western Power, the operator of the South West interconnected electricity network in Western Australia. While the requirements apply to power lines owned and operated by Western Power (referred to in this document as the network operator), they should be considered as good practice elsewhere throughout the State.

The responsibilities set out in these guidelines are based on the policy framework developed in the early 1990s by SECWA (Western Power's predecessor) through extensive community consultation. That policy framework has been endorsed by successive State Governments and is anticipated to be set out in legislation.

Meanwhile, Western Power has agreed to adopt these guidelines, which obligate it to carry out considerably more vegetation control than is required by the current legislation [per section 54 of the *Energy Operators (Powers) Act 1979*], which places the entire responsibility for vegetation control on the owners/occupiers[1] of land in the vicinity of power lines. In other words, Western Power's agreement to adopt these guidelines is of advantage to landowners/occupiers.

1 This term is used in these guidelines to describe all types of persons/organisations that have a responsibility for managing an area of land, whether in private or public ownership.

Introduction

Energy*Safety* is the State Government regulator responsible for, among other functions, the technical and safety regulation of electricity transmission, distribution and utilisation in Western Australia, for the purpose of ensuring the safety of the public, energy workers and consumers.

Serious fires, accidents and loss of (or unstable) electricity supply can occur when vegetation is not controlled or kept clear of overhead electricity power lines. In many cases, these incidents have occurred because of misunderstandings or ignorance of responsibilities for the control of vegetation around the power lines.

The responsibilities for controlling vegetation around power lines are set out in these guidelines and depend upon:

- the type of power lines ie. whether distribution (voltages of 240/415 volts to 33,000 volts), or transmission (voltages of 66,000 volts to 330,000 volts);
- the location of the vegetation that could interfere with the power line; and
- whether the vegetation is naturally occurring or has been planted and/or cultivated.

Tree pruning near power lines

Tree clearing safety

For safety reasons, tree pruning near power lines is best carried out by trained and competent people.

Land occupiers attempting to clear vegetation in close proximity of live power lines should first seek advice from the network operator to ensure compliance with safe working clearances and safety zones.

Western Power can be contacted by telephoning 13 13 51.

If any vegetation control person or any tool, equipment or vehicle used by that person, is likely to come within the 'danger zone' (see diagram on page 5), then by law the person must:

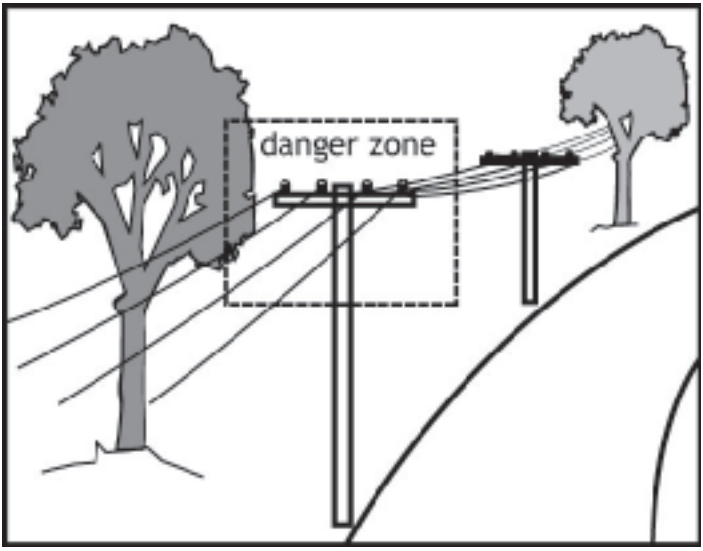
- be properly trained; and
- comply with the requirements of the Energy*Safety* publication *Code of Practice for Personnel Electrical Safety for Vegetation Control Work Near Live Power Lines* or an alternative code approved by the Director of Energy Safety.

When engaging a contractor to control vegetation around power lines, it is important to check they have the skills and knowledge to carry out the work. Vegetation control contractors are listed in Yellow Pages under "Tree...." related services.

The danger zone for work purposes

The ‘danger zone’ for work purposes is defined as the area:

- above any power line; and
- within 3.0 metres of a power line of a voltage up to and including 33,000 volts; or
- within 6.0 metres of a power line of a voltage exceeding 33,000 volts.



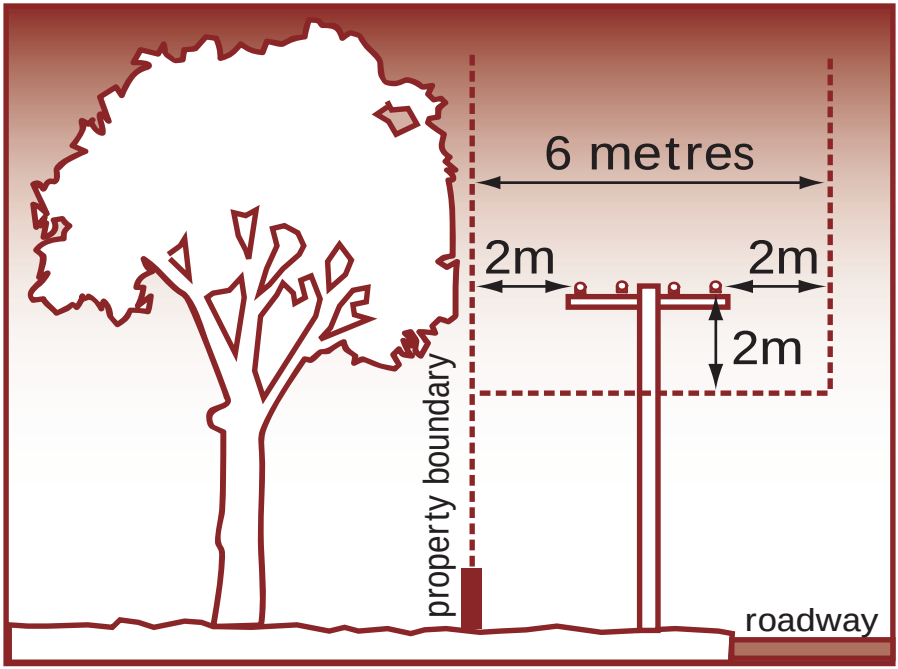
Tree pruning near power lines

Clearances required from power lines

The basic rule for the most common situation in urban areas is that vegetation needs to be kept at least two metres clear (to the side, and below) of electricity conductors of **distribution** power lines. Also, vegetation should not overhang the conductors.

Larger clearances apply to **transmission** power lines and these are managed by the network operator.

Refer to the Appendix on page 16 for details of minimum vegetation clearances to be maintained around different types of voltages and conductors. Seek advice from the network operator before attempting to apply these clearances in a particular situation.



Typical vegetation clearance zones in urban areas

Responsibility for control of vegetation near power lines up to 33,000 volts

(a) Network operator power lines in urban streets

(refer to diagram page 9)

(i) Where the vegetation has been planted or cultivated – within a street verge

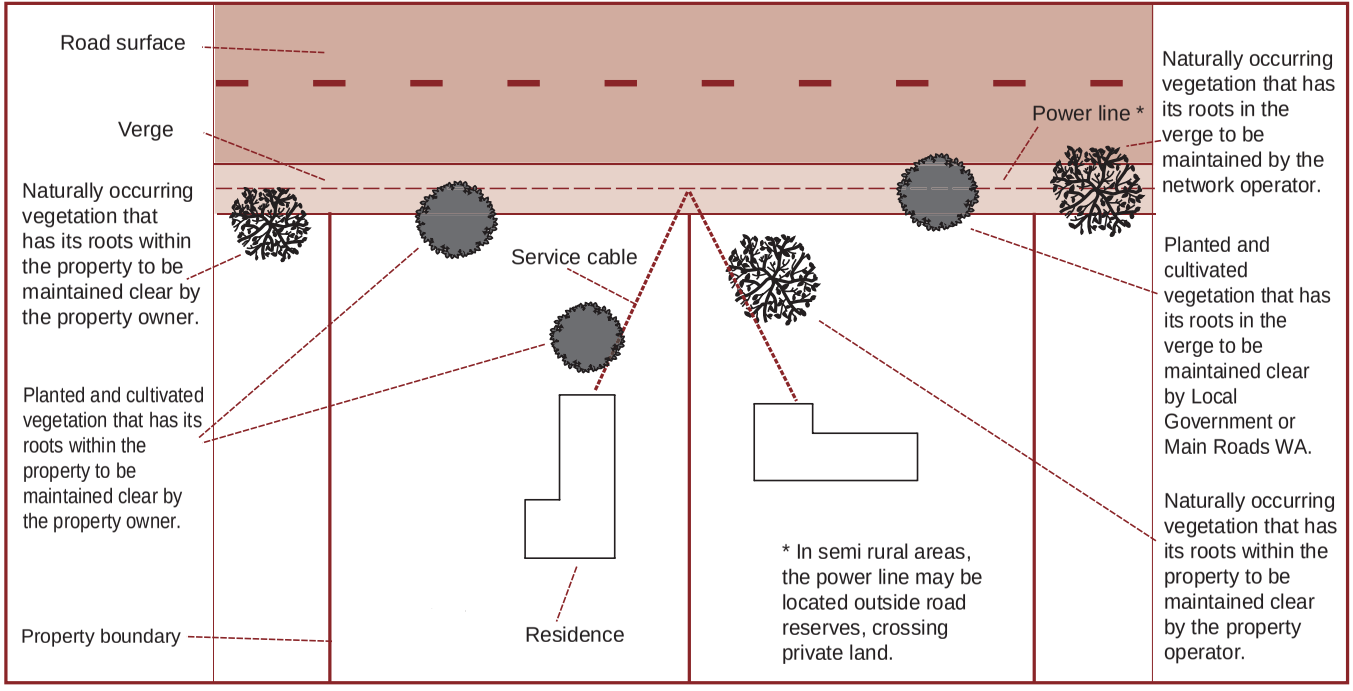
Control of vegetation that has been planted or cultivated and is within a street verge is the responsibility of the local government body for that area (eg city, town or shire council), or Main Roads WA, as it is recognised as the relevant landowner/occupier.

(ii) Where the vegetation is naturally occurring – within a street verge

Control of vegetation that is naturally occurring (has not been planted or cultivated) and is within a street verge is the responsibility of the network operator.

(iii) Where the vegetation is in property (of any ownership) adjacent to a street verge with power lines

Where there are power lines in a street verge, it is the responsibility of the owner/occupier of property adjacent to the verge to ensure the vegetation within the property, whether naturally occurring, planted or cultivated, is kept well clear of power lines in the street verge.



Suburban and semi rural areas

(b) Network operator power lines located on farms, crown land or reserves

(refer to diagram page 11)

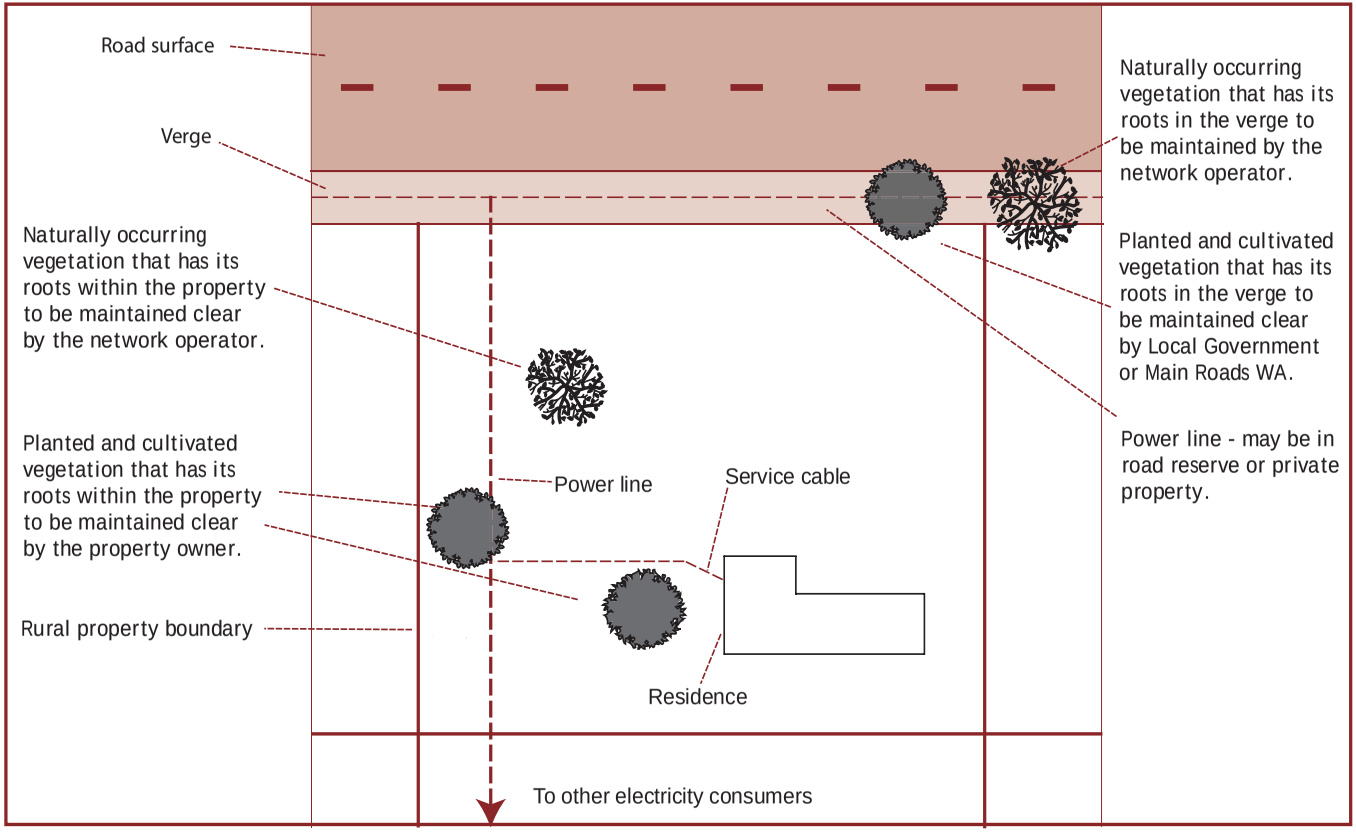
[subject to “Special Western Power power line extension schemes” as covered in this publication]

(i) Where the vegetation has been planted or cultivated

Control of vegetation that has been planted or cultivated is the responsibility of the owner/occupier of the property.

(ii) Where the vegetation is naturally occurring

Control of vegetation that is naturally occurring (ie has not been planted or cultivated), such as on original bush land near power lines, is the responsibility of the network operator.



General rural areas (eg farms)

Special Western Power power line extension schemes

In these cases, the responsibilities for vegetation control may vary from those previously stated.

• Contributory Extension Schemes

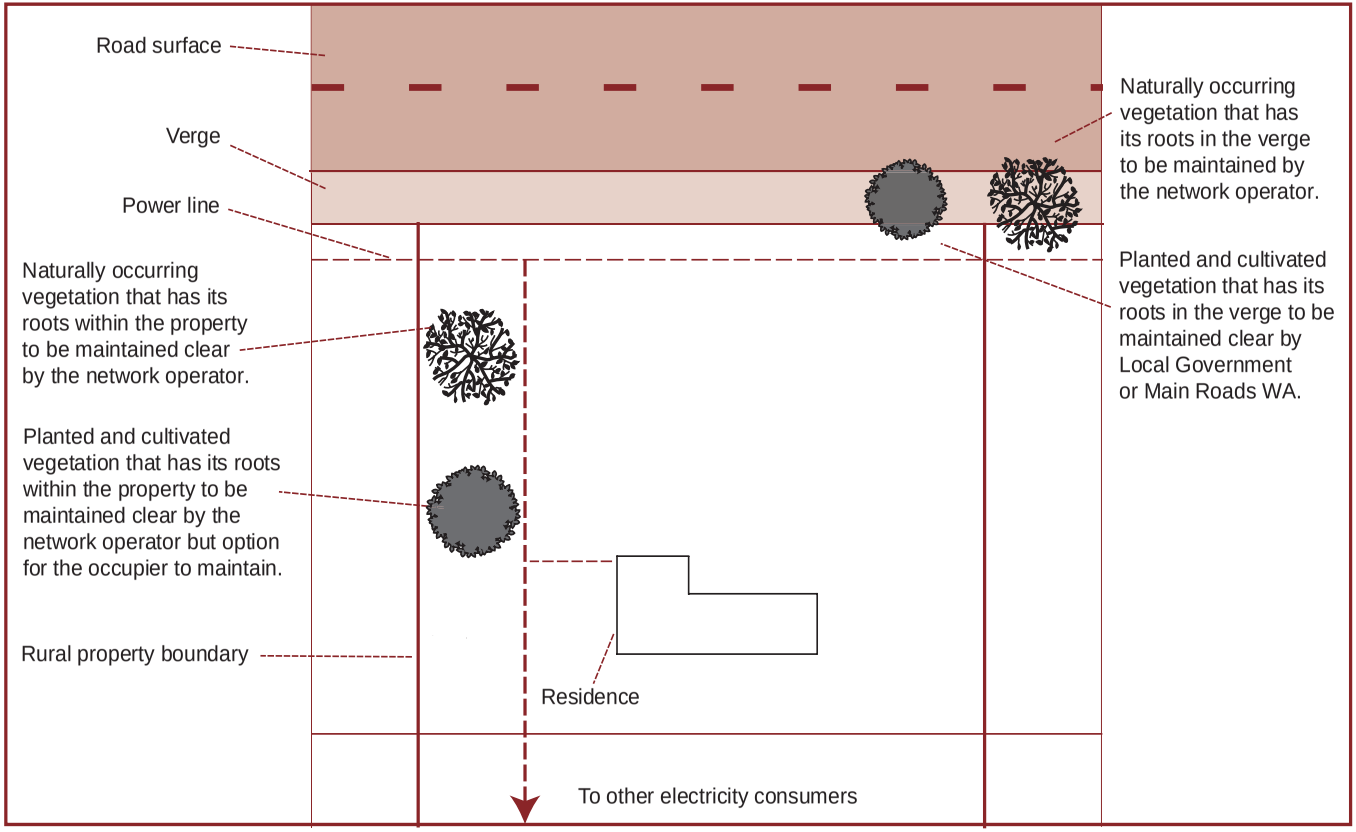
(refer to diagram page 13)

Western Power “Contributory Extension Schemes” (CESs) applicable to some rural areas included a landowner/occupier maintenance component for which Western Power agreed to control near power lines all vegetation, whether naturally occurring, planted or cultivated, for the life of the agreement.

Where the vegetation is planted or cultivated, agreement may be sought between Western Power and the landowner/occupier as to the responsibilities for control of vegetation in those properties.

• Supply Extension Schemes

Western Power ‘Supply Extension Schemes’ (SESs) were introduced to replace CESs. Unlike CESs, SESs do not include a maintenance component. Therefore, responsibilities for vegetation control near power lines is the same as for normal power lines up to and including 33,000 volts, as detailed in these guidelines at pages 9 or 11.



Rural areas - CES only

Control of vegetation – other situations

Control of vegetation near power lines energised at greater than 33,000 volts

Power lines with voltages greater than 33,000 volts are considered to be transmission lines and the network operator is responsible for control of vegetation near these power lines. However, this may be varied when special vegetation management is required and is documented, or when special written agreements are reached between the network operator and the owners/occupiers of the land.

Control of vegetation near power lines under construction

The network operator is responsible for control of vegetation near its power lines that are under construction, up to the time of commissioning.

For customer funded power lines under construction, the proponent (eg mining company or developer) is responsible for control of vegetation near those power lines.

In other words, the responsibility for initial control of vegetation to establish appropriate clearances around power lines under construction rests with the company building the power line.

Control of vegetation on land managed by government agencies

In February 2004, the WA Premier issued a circular setting out the Government's policy relating to the control of vegetation near power lines.

In most circumstances, there is a single agency responsible for the management of each area of Government land.

However, where the control and management of the land (including national parks, state forests, nature reserves, road reserves and vacant crown land) is shared between government agencies, the agency that effectively owns (controls) the land is required to liaise with the network operator and any occupier of part of the land is to ensure that clear arrangements are in place for the effective management of vegetation near power lines, in accordance with these guidelines.

Notice to control vegetation

If a landowner/occupier is issued with a notice (from the network operator) to clear vegetation around a power line, it is the landowner/occupier's responsibility to have the offending vegetation cleared from around the power line.

If the work is not carried out in a reasonable time as set out in the notice, the network operator may enter the land and carry out the work in the interests of community safety and saving other electricity consumers from power interruptions and interference.

The network operator may legally recover the associated costs from the landowner/occupier.

Appendix

Table: Details of minimum vegetation clearances to be maintained around different types of voltages and conductors.

Power line type	Horizontal clearance (m)	Vertical clearance (m)	Branches permitted above power line
Insulated service cable	0.3	0.3	Yes
LV Aerial Bundled Cable (LVABC)	0.3	0.3	Yes
Street light pilot cable	0.3	0.3	Yes
Bare urban LV conductors (and service cables) with less than a 70 m span	2.0	0.6	No[1]
Bare LV conductors with a span of 70 m span and above and all spans in high fire risk areas	2.5	2.0	No[1]
Insulated HV conductors (ABC or CCT)	1.0	1.0	Yes
Bare urban HV conductors up to and including 33 kV with less than a 70 m span	2.0	2.0	No[1]
Bare non urban HV conductors up to and including 33 kV with less than a 70 m span	2.0	2.0	No[1]
Bare HV conductors up to and including 33 kV, with spans from 70 to 100 m and all spans less than 200 m in high fire risk areas	2.5	2.0	No[1]
Bare HV conductors with spans from 100 to 200 m (up to and including 33 kV)	4.0	2.5	No[1]
Bare HV conductors with a span of 200 m and above (up to and including 33 kV)	5.0	2.5	No[1]

•ABC - aerial bundled conductors •CCT - covered conductor thick • LV - low voltage - up to 1000 VAC •HV - high voltage - greater than 1000 VAC

1 May be permitted, depending on vegetation species and condition. The occupier may still be responsible for damage caused by the tree and should seek an opinion from an independent qualified tree expert or arboriculturist as to the risk of the tree causing damage.

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Government of **Western Australia**

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This publication has been produced by Energy*Safety*, a division of the Department of Consumer and Employment Protection.
For enquiries about vegetation control around overhead powerlines, telephone Western Power on **13 13 51**

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