

# Vegetation: Management Plan

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## 1 Corporate Statement

Country Energy recognises the amenity value of trees and other vegetation and their importance to our environment. However, vegetation must be managed near powerlines to maintain safety to individuals and the environment whilst maintaining the quality and reliability of the electricity supply. This is a difficult task to achieve while maintaining safety requirements, protecting or minimising harm to the environment, preventing damage to property and to satisfy all concerned.

‘Trees for life’ – Country Energy’s Vegetation Management Plan has therefore been compiled to detail all relevant details of vegetation control near powerlines.

## 2 Introduction

Country Energy is a leading Australian energy services corporation owned by the New South Wales Government, with 3,300 employees in 140 customer and field service centres, nine regional offices and four business centres in Sydney, Melbourne, Brisbane and Newcastle.

Country Energy operates under a decentralised regional structure which helps Country Energy respond to local priorities in serving more than 800,000 customers.

Country Energy manages Australia's largest power supply network across 95 per cent of New South Wales' land mass, spanning mountains, plains and deserts, with climates ranging from snow to extreme heat. Our network assets include around 195,000 kilometres of powerlines, 1.4 million power poles, 113,000 distribution substations and 120,000 street lights.

Country Energy’s Vegetation Management Plan ‘trees for life’ has been prepared in accordance with the NSW Electricity Supply (General) Regulation 2001.

To obtain a copy of this Plan:

- Visit the Country Energy web-site at [www.countryenergy.com.au](http://www.countryenergy.com.au)
- Phone Country Energy’s Customer Service Centre on 13 23 56; or
- Send an email to: [info@countryenergy.com.au](mailto:info@countryenergy.com.au)

COUNTRY ENERGY’S REGIONS



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**3 Objectives**

The objective of this Vegetation Management Plan is to establish the manner in which vegetation near powerlines will be managed in order to:

- MINIMISE danger to the public
- IMPROVE system reliability by reducing vegetation related interruptions to the electricity supply
- REDUCE the risk of fires caused by trees coming into contact with electricity wires
- MINIMISE environmental harm including minimising damage or destruction of trees; and
- REDUCE the risk of vegetation causing damage to, or interfering with powerlines.

**4 Purpose**

The purpose of this Vegetation Management Plan is to:

- ENSURE proper guidelines and methodology are in place to promote Best Practice in the maintenance of vegetation under or near powerlines
- ENSURE that those guidelines and methodology minimise the dangers to the public, vegetation management workers and electrical maintenance workers
- DETAIL responsibilities for maintaining clearance between powerlines and vegetation; and
- ENSURE compliance with appropriate legislation.

**5 Key Terms and Definitions**

**Aerial Bundled Conductor:** A covered multi-core cable used in substitution for multiple bare single conductors.

**Authorised:** Refers to be authorised by Country Energy.

**CE-IN-CONFIDENCE:** this is a general sensitivity label to be applied to information assets that are not to be released outside of the organisation, but are freely available to all employees and other personnel working directly for Country Energy. An example of the use of this sensitivity label would be its application to the corporate policies, forms, procedures, standards, manuals and guidelines to be applied across the organisation. For more information refer to Information Security Sensitivity Labelling and Handling CEPG1096 and CEM7063.

**Clearance Space:** The space surrounding a powerline, which must be kept clear of vegetation at all times.

**Council:** The Council of a local government area.

**HACCP:** Hazard Analysis Critical Control Point is a pro-active process control system by which food quality is ensured.

**Heritage Listed:** Refers trees listed singly, in groups, avenues, streetscape plantings or conservation areas on the State Heritage Register under the NSW Heritage Act 1977, covered by tree protection orders, listed on significant tree registers, heritage schedules or in “Special Character Areas” on local and regional environmental plans (LEPs and REPs) and development control plans (DCPs) prepared under the Environmental Protection and Assessment Act, listed on the Register of the National Estate by the Australian Heritage Commission and classified by the National Trust of Australia.

**Inspection Space:** The area outside the clearance space that also may need clearing to maintain safety and electricity supplies.

**Naturally Propagated:** Vegetation that has been naturally propagated, including by birds or animals.

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**Occupier:** The person(s) who is in actual occupation of the land.

**Overhead:** In relation to a powerline, means a powerline that is above ground level.

**Powerline:** An electric line, structures and equipment used for or in connection with the supply of electricity, which ordinarily operates at voltages up to 132 kilovolts but does not include telecommunication cables.

**Private Electric Line:** Any overhead electric line that is the responsibility of the landowner/occupier. This typically includes overhead mains beyond the metering point.

**Regrowth:** means saplings, suckers and other vegetation which has grown or regrown after previous control works.

**Rural Area:** Any area that is not an urban area.

**Sapling:** An immature tree.

**Service Line:** An overhead or aerial powerline between Country Energy's distribution mains and the customer's consumer terminals used to supply low voltage electricity to the customer.

**Sensitive Areas:** Includes riparian areas, threatened species habitat, wetlands, cultural heritage sites, etc.

**Threatened Species:** A species specified in the Threatened Species Conservation Act.

**Tree:** A plant taller than 3 metres, or having a canopy more than 3 metres in diameter or having a trunk with a circumference at a height of 1 metre from the ground of more than 0.3 metres. May include shrubs and other plants for the purposes of the Electricity Supply Act 1995 (NSW).

**Vegetation:** All plant life including, but not limited to, trees, palms, vines, shrubs, grasses such as bamboo but not lawns.

## 6 Safety

Safety is Country Energy's number one core value. Country Energy's Health and Safety Policy, Attachment A, details the broad guidelines for Country Energy's safety requirements and objectives. One of the biggest threats to safety near powerlines is trees. The dangers include:

- Falling branches or trees bringing down live power lines
- Ignition of bushfires with subsequent damage to property, individuals and the environment
- Children climbing trees near powerlines
- Electric shocks from vegetation touching live powerlines; and
- Damage to property and people.

Therefore vegetation near powerlines must be managed or serious consequences may result.

### 6.1 Country Energy's Safety Responsibilities

Country Energy must ensure that trees are kept clear of powerlines to ensure a safe and reliable electricity supply is delivered. This is not to say that Country Energy must carry out the work, but it is Country Energy's responsibility to ensure the work is carried out.

## 6.2 Landowner/Occupier's Safety Responsibilities

The landowner/occupier should monitor the clearance between powerlines and vegetation to ensure the clearance space is free of vegetation at all times. Attachment C shows these minimum clearances.

Country Energy should be contacted for advice if the clearance space is compromised. Where the landowner/occupier is responsible for the management of the vegetation, Country Energy should be contacted to advise of an authorised contractor who can carry out the work.

Trimming or removal of trees near powerlines is extremely dangerous and should not be attempted by untrained persons. If unauthorised people are to do any trimming or removal works near powerlines, then their equipment, all persons and the tree should be at least 3 metres away from powerlines, even from insulated low voltage powerlines.

Adequate risk control measures must be employed when working outside the 3 metre limit. If trees are closer than 3 metres to powerlines then only authorised vegetation management workers may carry out work on these trees.

A list of authorised vegetation management contractors can be obtained by contacting Country Energy.



## 6.3 Vegetation Management Worker's Safety Responsibilities

Vegetation management workers must be appropriately qualified and authorised to carry out vegetation control work where the tree, the workers or the equipment is to come within 3 metres of any powerlines. While carrying out management measures vegetation maintenance workers must not endanger themselves or members of the public. All appropriate Legislation, Codes of Practice and Country Energy Safety Procedures shall be followed.

## 6.4 Planters' Safety Responsibilities

Those planting trees and other tall growing vegetation should realise their safety responsibilities and not create a potential safety problem. Planting near powerlines could have devastating consequences in the future. Refer to Section 8 for planting guidelines.

## 7 Environmental

Country Energy's Environmental Management System, which includes Country Energy's Environmental Policy, Appendix 2, has been implemented on a whole of business approach, involving all functional areas including vegetation management. The associated environmental aspects of vegetation management have been identified by a risk assessment process to determine their environmental effects and significance. This Vegetation Management Plan takes these aspects into account.

Vegetation management must be carried out to protect the environment from damage caused by such things as bush fires ignited by powerlines and the electrocution of animals climbing tall growing vegetation near powerlines.

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Country Energy is committed to carrying out all phases of vegetation management in an environmentally responsible manner whilst supporting the principles of ecologically sustainable development.

Environmental best practice in relation to vegetation management must consider a number of factors to meet legislative requirements, community expectations and to minimise environmental harm. Vegetation management works must be carried out to comply with these requirements whilst using the most appropriate cost-effective measures. This Vegetation Management Plan details these measures.

Country Energy will carry out vegetation management near powerlines in compliance with applicable statutory obligations and in accordance with this Plan. Land owners/occupiers when carrying out any vegetation management work near powerlines should do so in accordance with this Plan.

**7.1 Heritage Sites**

Country Energy seeks to preserve natural and cultural heritage features including aboriginal sites, and non-aboriginal historic structures and memorial gardens, parks, tree plantings and landscapes including those heritage listed. It is recognised that it is illegal to remove, disturb or destroy any archaeological site or material.

Works shall cease where there are finds of aboriginal artefacts or other archaeological artefacts. They shall be reported to Country Energy, National Parks and Wildlife Service and the Heritage Office for the appropriate action.

Council trees could be protected under Tree Protection Orders, Significant Tree Registers, and heritage schedules as either items or in conservation areas, in “Special Character Areas”, in bushland or scenic protection zones on LEPs. They could also form a key part of areas controlled by development control plans (DCPs).

Significant, memorial and heritage trees may require an annual trim to minimise potential dangers or damage or the consideration of alternative solutions as detailed in Section 14 is also recommended.

Consent is required from the relevant body to prune or remove protected trees or to excavate in areas where archaeological relics are known or likely to be disturbed or damaged.

**7.2 Threatened Species**

Country Energy’s aim is to protect species listed as threatened or endangered by Threatened Species Conservation Legislation including species protected by the Threatened Species Conservation Act 1997 (NSW) and the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth). Where powerline corridors contain threatened species of flora and fauna, non-threatened tall growing species will generally be trimmed or removed. Previous vegetation management practices beneath powerlines (especially high voltage lines with wide easements) have in certain instances, served to enhance native flora and fauna. Such corridors prove to be valuable ecological areas. Tall growing threatened species will be trimmed to the minimal amount necessary or other management options considered.

**7.3 Protection of Flora and Fauna**

Country Energy vegetation management workers shall follow the following conditions to protect flora and fauna:

- Firearms are not permitted on work sites
- Dogs and other domestic animals are not permitted on work sites
- All native fauna (including snakes) are protected. Animals shall not be unnecessarily disturbed
- Feeding of native animals is prohibited

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- The picking or possession of protected native plants is prohibited
- Minimise movement of vehicle through sensitive areas; and
- Minimise soil compaction or disturbance.

**7.4 Bush Fire Prevention**

Bush fires can cause death and damage to the environment and property. Country Energy undertakes vegetation management control to prevent the ignition of bush fires from electricity lines. Country Energy does not control fuel build up under powerlines that is the responsibility of the landowner other than to meet the objectives of this Plan.

Landowners and rural brigades often use powerline corridors as fire breaks.

**7.5 Erosion and Sediment Control**

Vegetation management works will be carried out to minimise disturbance to low growing species, vegetative ground covers and topsoil, to prevent or minimise erosion.

If there is the possibility of erosion, the stumps and the root structures of vegetation to be controlled should be retained.

Where the site is left exposed and has the potential to erode then appropriate measures will be implemented in accordance with recognised mitigation practices, this may include re-seeding the area.

It is recognised that the disturbance of acid sulphate soils can be an issue and vegetation management works shall be carried out to minimise soil disturbance.

**7.6 Roadside Management**

Country Energy will endeavour to support and follow the principles and guidelines of the NSW Roadside Environment Committee, as roadside vegetation is often the only quality remnant native vegetation in many areas.

**7.7 Noise**

Vegetation management works should be carried out in a manner that will minimise any nuisance or annoyance to members of the public whilst achieving the objectives of the works.

**7.8 Use of Herbicides**

Herbicides will be used to prevent the further growth of selected saplings and trees. This will be done in accordance with the manufacturer's requirements and appropriate recognised techniques. See Section 15.3.

**7.9 Pollution Control**

Disposal of any material by Country Energy's vegetation management workers must be in accordance with legislative requirements.

Watercourses and water bodies shall not be polluted by rubbish, felled or cut vegetation, toilet waste, silt, fuel spillage, herbicide, herbicide containers, etc. Refuelling operations or decanting of herbicides should be conducted at least 30 metres away from watercourses.

Spillage of herbicides or fuels should be avoided, but where a spillage or leakage has occurred, the applicable Country Energy Procedure shall be followed to ensure adequate control measures are implemented and the appropriate notifications are carried out.

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**7.10 Waste**

All waste generated from vegetation management works shall be recycled wherever possible. Debris may be left in rural situations, where it will not pose a safety risk, to decompose naturally. The mulching of or removal of debris may be required in other situations. The mulch generated may be left on site to stabilise the site. The burning of debris is to be used as a last resort and the requirements of bush fire regulations need to be followed. Where debris from exotic and/or invasive weed species is likely to self propagate then the resultant debris should be removed to the local landfill site or treated to prevent propagation.

Country Energy will generally not remove trees or branches that are blown down or where a tree falls over from natural causes.

**7.11 Animal and Crop Diseases/Pathogens**

Country Energy will endeavour to prevent or minimise the spread of organisms that cause crop or animal diseases when carrying out vegetation management works.

**7.12 Weeds**

Country Energy aim is to prevent or minimise the spread of noxious weeds (NSW) and declared plants (QLD) when carrying out vegetation management works. Country Energy's Noxious Weeds Procedure will be followed to achieve this aim.

**7.13 Mangroves**

Country Energy shall follow the requirements of its permit to trim mangroves; the Department of Fisheries issues the permit under the Fisheries Management Act 1994. All trimmings will be removed from the tidal zone. Machinery is not permitted to enter the intertidal zone unless with the consent of the District Fisheries Officer. Trimming shall otherwise be carried out in accordance with the requirements of this Vegetation Management Plan.

**7.14 Vegetation at Rivers, Lakes and Creeks**

Tall growing saplings up to 3 metres that are likely to cause interference or damage to powerlines in the future are to be removed and/or treated with an appropriate herbicide to prevent regrowth, whilst root structures are to be retained.

The Department of Land and Water Conservation may give approval for the removal of mature trees if the surrounding vegetation is sufficient to prevent erosion. Otherwise the tree must be trimmed. Where trimming of any tree is too dangerous to do so the tree shall be topped to chest height and treated with an appropriate herbicide. It may be necessary to establish low growing vegetation to stabilise the area prior to the removal of mature trees.

**7.15 State Environmental Planning Policy (SEPP) and Commonwealth Protected Areas**

Country Energy's aim is to carry vegetation management works in these areas in accordance with this Vegetation Management Plan and appropriate legislation.

The following are those NSW SEPP's that apply:

- SEPP 14 Coastal Wetlands
- SEPP19 Bushland in Urban Areas
- SEPP 26 Littoral Rainforests
- SEPP 44 Koala Habitat Protection
- SEPP 71 Coastal protection.

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Areas of national environmental significance protected by Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth) include Commonwealth lands, RAMSAR wetlands and World Heritage sites.

**7.16 National Parks**

Vegetation control in lands reserved and dedicated National Parks will be carried out in accordance with this Vegetation Management Plan and in accordance with the agreement “NSW Electricity Association - Procedures for Power Line Maintenance in National Parks”.

**7.17 State Forests**

Vegetation control in State Forests will be carried out in accordance with this Vegetation Management Plan and in NSW in accordance with Country Energy’s Occupation Permit.

**7.18 Dead Trees**

Where dead trees are in the immediate vicinity of power lines, they should be lopped to a height at which if they fell would not cause a potentially dangerous situation and damage the power line. This will allow the remainder of the tree to stand for any fauna that may wish to inhabit it. If any fauna already inhabit branches that are to be removed then work should be delayed until the fauna has moved, unless there is an immediate threat to the power line. Timber removed by lopping may be left on site for habitat depending on property owner requirements.

**7.19 Maintenance of Local Aesthetic Qualities**

It is recognised that maintaining the local aesthetics of an area is important. However, many trees do not lend themselves to trimming in a manner that is visually pleasing. Similarly what is pleasing to one person may be unattractive to another. Also further trimming of most species to make them aesthetically pleasing will result in accelerated growth and a dangerous situation. Therefore vegetation management works should be carried out to minimise any disturbance to local aesthetics while considering the individual situation at hand. Trimming is to be carried out in accordance with the requirements of Section 12.

The priority of all tree pruning is to minimise the risk of contact between trees and overhead powerlines and to do as little damage to the tree as possible.

**7.20 Pruning Method**

Country Energy will use arboriculture techniques recognised as best practice for the control of vegetation types under or near powerlines. This will include trimming to comply with Australian Standard AS4373 – Pruning of Amenity Trees wherever possible. This is discussed further in Section 12.

**8 Planting Guidelines**

There is an increasing public awareness of environmental issues and the need to grow more trees. This can lead to the planting of inappropriate trees in a variety of situations. Directly relevant to Country Energy are those planted under or near powerlines.

Planting of inappropriate species can jeopardise public safety when powerlines are knocked down by trees or when the public trim or remove trees near powerlines. Under NSW legislation, the planting of inappropriate species will also make the planter responsible for future trimming and/or removal costs, and could lead to legal liability for damages caused by the planting. It is therefore in everybody’s interests to reduce these costs and the associated dangers by reducing the number of inappropriate plantings.

Planting the wrong tree in the wrong place can also have environmental consequences. Bush fires have started because of vegetation coming into contact with powerlines resulting in a loss of flora, fauna, life and property.

Therefore, Country Energy encourages the planting of trees and other tall growing vegetation away from powerlines. This allows them to grow to their full potential and be of benefit in the environment and the natural aesthetics of trees can then be fully appreciated as ‘trees for life’. Country Energy recommends that the Planting Guide 8.5 be followed when planting and that trees should not be planted under or near power lines. Section 8.5.1 provides a list of some trees that are unsuitable to be planted near powerlines.

The following planting guidelines will assist to prevent further inappropriate plantings.

### **8.1 Rural**

The property owner and councils are encouraged to plant all species, other than grasses, away from powerlines in rural areas as access to powerlines is required by Country Energy crews for routine maintenance and repairs. LandCare and others planting to connect habitats should do so in the best possible location such as deep gullies where planting will have no effect on power lines.

The planting of low growing species near powerlines is permissible provided they do not and will not interfere with powerlines or pose a risk of bush fire or to public safety and will not restrict access to powerlines for maintenance or repairs.

### **8.2 Urban**

In most urban areas power lines are accessible from the street pavement. This allows low growing plants to be planted under or near power lines. These plants should never grow within 3 metres of any powerline. As the mature height of individual plants can vary significantly it is best to plant away from powerlines -“trees for life”. Accordingly, Country Energy encourages the public to seek Council approval when wishing to plant on streets.

### **8.3 State Forests Agro forestry Ventures**

A minimum agreed corridor width of 32 metres applies. Country Energy’s Planting Guide should be followed outside this zone.

### **8.4 Orchards**

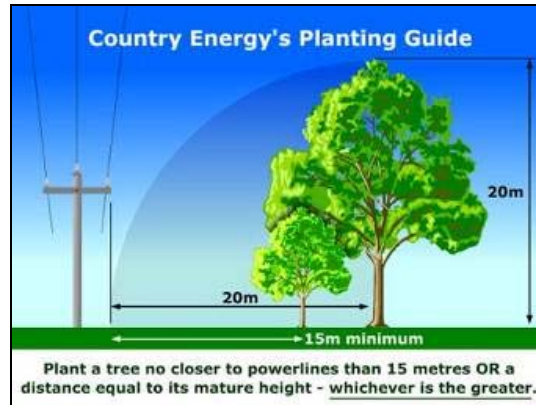
Orchards should be planted using the Planting Guide in Section 8.5. This will allow access for maintenance and repairs of the powerlines as well as access for orchard operations.

### **8.5 Country Energy’s Planting Guide**

Simple Tips:

- Look up before you plant
- Consider how big the tree or vegetation will grow and what will be affected
- Plant taller varieties furthest away from the powerlines using the below Planting Guide
- Planting on streets should not be carried out without Council approval
- When planting, remember that access to powerlines is required for maintenance and repairs in the future
- It is recommended to plant species that are native to the area
- Do not plant species that could invade the surrounding environment
- It is recommended to plant away from the underground pits, pillar boxes and padmount transformers so roots don’t become a problem
- This guide also applies to planting trees near Aerial Bundled Conductor (ABC) powerlines
- Country Energy can provide guidance when planting. Local nurseries should also be consulted

- Country Energy considers the trees listed in Section 8.5.1 and other tall growing species as unsuitable under or near powerlines.



**Trees Unsuitable for Planting Under/Near Powerlines**

The majority of trees are unsuitable for planting under or near powerlines due to the dangers involved and insufficient room for the tree to grow. Table 1 provides a list of some common species that are unsuitable under or near powerlines.

TABLE 1 – TREES UNSUITABLE FOR PLANTING UNDER/NEAR POWERLINES			
Botanical Name	Common Name	Botanical Name	Common Name
<i>Acacia species (large)</i>	Wattle	<i>Jacaranda mimosifolia</i>	Jacaranda
<i>Acer species</i>	Maples – not Japanese	<i>Ligustrum species</i>	Privet
<i>Acmena species (large)</i>	Lillypilly or Bush Cherry	<i>Liquidamber species</i>	Liquidamber
<i>Alnus species</i>	Black & Evergreen Alder	<i>Lophostemon confertus</i>	Brush Box
<i>Araucaria species</i>	Bunya-Bunya, Hoop or Norfolk Island Pine	<i>Magnolia grandiflora</i>	Bull Bay Magnolia
<i>Bambusa species</i>	Bamboo	<i>Melaleuca species (large)</i>	Paper barks
<i>Banksia species (large)</i>	Banksia	<i>Melia azedarach</i>	White Cedar
<i>Betula species</i>	Birch	<i>Palm species</i>	Palm
<i>Brachychiton species</i>	Lace-Dark, Flame & Kurrajong	<i>Pinus species</i>	Pine
<i>Caesalpinia ferrea</i>	Leopard tree	<i>Platanus species</i>	Plane tree
<i>Casuarina species</i>	She-Oaks	<i>Populus species</i>	Poplar
<i>Cedrus species</i>	Cedar, also Fir & Spruce	<i>Quercus species</i>	Oak
<i>Celtis species</i>	Nettle-tree	<i>Salix species</i>	Willow
<i>Cinnamomum camphora</i>	Camphor Laurel	<i>Schinus species</i>	Pepper-corn tree
<i>Cupressus species</i>	Cypress trees	<i>Stenocarpus spinuatus</i>	Qld. Firewheel tree
<i>Delonix rigia</i>	Poinciana or Flamboyant	<i>Syncarpia glomulifera</i>	Turpentine
<i>Erythrina species</i>	Coral-tree	<i>Syzygium species</i>	Lillypilly or Bush Cherry
<i>Eucalyptus species</i>	Gum trees	<i>Tamarix aphylla</i>	Athel pine
<i>Ficus species</i>	Fig trees	<i>Tilia species</i>	Linden or Lime tree
<i>Fraxinus species</i>	Ash	<i>Tipuana tipu</i>	Race-horse tree
<i>Gleditsia species</i>	Honey Locust	<i>Ulmus species</i>	Elm
<i>Grevillea robusta</i>	Silky Oak	<i>Zelkova serrata</i>	Japanese Elm
<i>Hymenosporum flavum</i>	Native Frangipani		Tall growing fruit and nut trees

**9 Underground Policies, New and Augmented Construction Work**

Councils are encouraged to ensure that electrical services in new urban developments are undergrounded to prevent interference with vegetation in the future.

Whenever arrangements for new construction are made, power supply routes should avoid tall growing vegetation or the initial clearing should be sufficient to minimise future maintenance problems. Trees, saplings and undergrowth shall be removed by ground-line cutting to ensure specified corridor widths. Engineering/planning representatives should be conversant with and understand Country Energy's clearing requirements. Aerial bundled conductor should, wherever possible, be the type of conductor used when Country Energy replaces low voltage overhead mains.

## 10 Public Education

Country Energy will continue to develop increased customer awareness of safety issues mentioned in this Plan in relation to the planting and control of vegetation near powerlines.

In this regard Country Energy's education program may include:

- Planting guidelines
- Posters
- Newspaper articles
- Tips on Country Energy accounts
- Liaison with landowners/occupiers, State Government bodies, Bush Fire Management Committees, LandCare, Garden Clubs, Progress Associations, Tidy Towns, Koala Societies, Beautification Committees, etc as appropriate
- Attendance at community or other groups meetings
- Attendance at field days e.g. AgQuip, tree fairs etc.
- Qualified employees to assist the community with any problems or inquiries they may have in relation to vegetation control near powerlines; and
- Any other opportunity to educate the community.

## 11 Methodology of Vegetation Control

### 11.1 Qualification of Employees

For those positions involved directly with the management of vegetation either by Country Energy or by contractors working for the landowner/occupier, pre-requisites should include the following:

- Formal qualifications in either horticulture or arboriculture attained from an accredited institution. The "Tree Care for Electricity Workers" course as taught by Ryde TAFE College or equivalent shall be the minimum acceptable standard. This applies to positions that manage and oversee trimming crews in the field and to those carrying out the work.
- All necessary qualifications as required by contractual, statutory or safety requirements to carry out the work safely and in a tradesman like manner.

## 11.2 Procedure

Many factors have an influence on the vegetation management option selected for any particular location and tree or group of trees. Qualified personnel will carry out management works in accordance with this Vegetation Management Plan to ensure that appropriate management options are carried out.

Where alternative electrical options (see Section 14.1) are not feasible, including economically feasible, vegetation can be managed either by pruning or by complete removal.

## 11.3 Pruning or Clearing Cycles

The frequency of clearing cycles is based on practical factors including regrowth rates, fire risk, climate, type of vegetation, recurrent costs, conservation considerations etc. Typically a two to three-year cycle is considered as reasonable industry practice. Country Energy will vary this as required depending on species, climate, location etc.

## 11.4 Emergency

Trees and other vegetation may need to be controlled or removed under emergency conditions to maintain safety and to maintain or restore the electricity supply. Where possible, trees in this category shall be assessed individually to determine the appropriate action. Heritage listed trees should still involve the relevant approval prior to action.

When assessing trees under emergency conditions, environmental factors that increase the likelihood of failure of the tree shall be considered. Examples of these conditions would be storm events, wind, bushfires, saturated soils, diseased or weakened branches, and restricted area of root and crown development.

Trees that are trimmed under emergency conditions may not receive the correct pruning techniques so remedial pruning may be required at some time in the future.

The land owner/occupier should be notified as soon as practical when Country Energy removes vegetation under emergency conditions.

## 11.5 Consultation with Property Owners

Country Energy will liaise with and notify landowners/occupiers about impending works. Country Energy will endeavour to resolve Vegetation Management issues, particularly regarding trimming or removal of vegetation, on a cooperative basis with the landowner/occupier in order to comply with its statutory responsibilities. If owners decline permission Country Energy may need to use its legislative powers to carry out vegetation management if it considers the work necessary to maintain safety and avoid threat to power supplies. The work will be done in accordance with this plan and the owner may be held responsible for the associated costs.

## 12 Pruning Practices

Trees are to be pruned to acceptable arboriculture standards set forth by Australian Standard AS 4373 “Pruning of Amenity Trees”, and as trained by TAFE – “Tree Care for Electricity Workers” Course or equivalent. Where these methods prove inappropriate, e.g. species that require pruning more frequently than is practical or acceptable, alternatives to pruning shall be considered (see Section 14.0).

Pruning is defined as the selective removal of branches from a tree to obtain a desired end, i.e. to provide the required clearance from powerlines. The aim of the pruning methods should be to work with the natural habit of each tree. The techniques described in this section detail the basic techniques and methods employed when pruning trees beneath or near powerlines.

The industry accepted minimum clearance distances are contained in Appendix 3. An extra 0.5 metre clearance is required for bush fire prone areas. Extra clearance distance must be made for regrowth, the type of vegetation, the climate, the whip of the tree in the wind, the sway of the powerline, the sag of the powerline on a hot day, the heating of the powerline from the current it carries, etc.

The branches to be trimmed will generally be taken back to branch collars therefore clearance distances will generally be in excess of those specified in Appendix 3.

### **11.6 Expertise**

All vegetation management workers undertaking pruning and felling work must have arboriculture knowledge and experience as detailed in Section 11.1, in addition to the required electrical knowledge. This knowledge and practical experience allows the trained personnel to determine the most appropriate method of trimming the tree. Knowledge of the tree's response to pruning will assist the worker in achieving the goal of a healthy tree.

It is recognised that some trees are not suitable for pruning due to a variety of reasons including previous poor pruning practises or their location (under or near powerlines). In this case, the vegetation management worker can do little with this type of tree to make it aesthetically pleasing.

### **11.7 Biology**

#### **Apical Dominance**

Apical dominance is the principal biological factor that influences pruning methods. The compact shoots from which growth occurs are found at the tips of branches and at the base of leaves. The bud at the tip of the tallest 'leader' shoot produces a growth hormone called auxin, which inhibits lower lateral buds from developing into branches. The effect of this hormone decreases over distance from the apical bud. As the effect of the hormone decreases, the lateral buds will develop into shoots. However, each one of these branches will also have a terminal bud, which will produce auxin and limit the development of the lower buds. This creates a hierarchy of shoots.

This phenomenon is known as apical dominance, and produces the triangular shape of most young trees. Natural growth is under the influence of a number of plant hormones as well as light and gravity and the genetic make up of the individual species. The result is a very orderly arrangement of leaves, buds, and branches which are characteristic of a certain species. Some trees such as many conifers and poplars stay apically dominant for their entire lives. We also refer to them as single leader trees. Other trees start with apical dominance but at a certain stage, the leading shoot loses its control and other branches grow to fill the canopy. This is known as co-dominance and produces dome shaped trees.

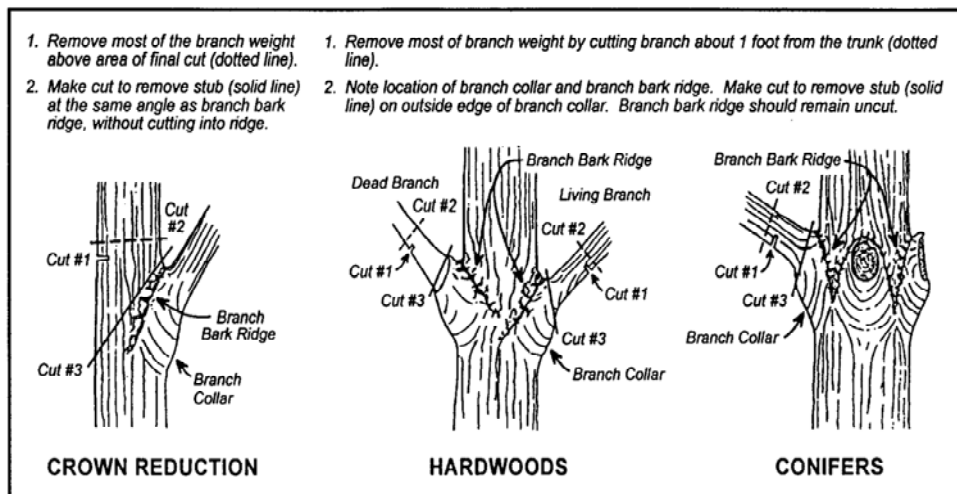
### **11.8 Basic Three Cut Branch Removal and Natural Target Pruning**

The first cut undercuts the limb at a certain distance from the parent branch or trunk, depending on the size and weight of the branch. A properly made under cut will eliminate the chance of the branch peeling or tearing bark as it is removed. The second cut is the top cut which is usually made slightly further out on the limb than the undercut. This allows the limb to drop smoothly when the weight is released. The third cut is to remove the stub using natural target pruning.

Natural target pruning is the correct 'final' cut after the main weight of a branch has been removed. The correct position of a final pruning cut works with the natural defence of the tree. The pruning techniques used by vegetation management workers are based on the biology of the tree.

A perfect target cut is indicated by subsequent even growth of wound wood around the wound. The cut should be made outside the branch collar and must not damage the branch bark ridge. Figure 1 illustrates this and the basic three cut branch removal.

**Figure 1 – Principle of Natural Target Pruning and Basic Three Cut Branch Removal (Copied with permission from Environmental Consultants International).**



### 11.9 Reduction Pruning and Directional Pruning

Reduction pruning is a method of pruning whereby branches are cut back to a 'growth point', i.e. a branch fork or lateral branch in a manner consistent with natural target pruning. Ideally, the lateral branch should be at least one-third the diameter of the portion being removed to gain full advantage of the method.

Reduction pruning has many benefits including maintaining the tree shape, the prevention of rapid growth of shoots and a tree structure that ultimately increases the length of the pruning cycle.

If reduction pruning is carried out correctly the energy of the tree will be directed into the lateral branch. When the lateral branch grows down and/or away from an object this is called directional pruning. This method of pruning is an essential technique around powerlines.

Directional pruning techniques should be employed at all times to direct growth away from the powerline and to minimise growth back toward the powerline. Pruning cuts should be made with this concept in mind to minimise the potential for re-growth back into the powerline.

### 11.10 Cutting Techniques

Arborists should be familiar with and experienced in approved tree cutting methods. The common types of saw cuts used for removing branches include hinge cuts, jump and drop cuts, and notch cuts. The basic 3 cut method of branch removal is the most popular technique as previously described in Section 12.3.

All final cuts should comply with the requirements of the Australian Standard AS 4373 – Pruning of Amenity Trees.

### 11.11 Inappropriate Techniques

The following techniques are considered inconsistent with best practice for the reasons stated, and are to be avoided:

- Stub cuts – promote die back and other diseases or may increase regrowth
- Flush cuts – slow wound wood development and create large wounds
- Tear cuts – promote insect attack and diseases; and
- Topping and lopping – promote insect attack and diseases and greatly increase growth rates.

The use of spikes in amenity trees wounds the tree and allows for insect attack and diseases.

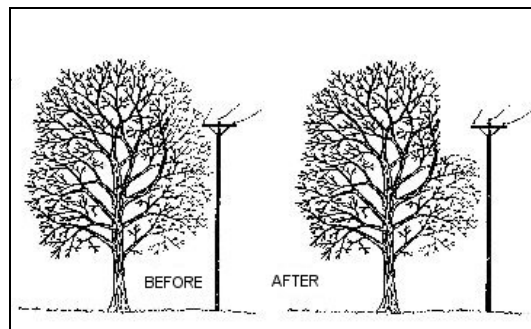
## 13 Line Clearance Pruning Standards

### 13.1 Side Pruning

Side pruning is defined as the removal of lateral branches growing toward the conductor, and is illustrated in Figure 2.

Side prunes to be carried out following the principles of directional pruning in order to minimise the re-growth of branches toward the powerline.

**Figure 2 - Diagram illustrating the correct method of side pruning to provide the required clearance to the powerline**

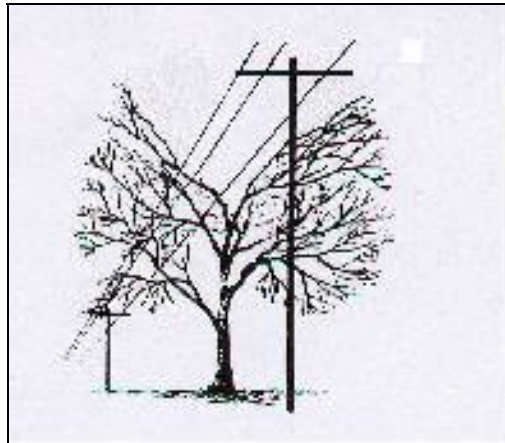


### 13.2 Through pruning

Through pruning is where conductors pass through the crowns of trees and pruning is such that the tree grows away from the powerlines as shown in Figure 3. This maintains the integrity of the shape of the crown when viewed from the sides. Care should be taken that this does not significantly alter the aerodynamics of the crown such that whipping or breakage of branches occur. Pruning back to growth points of the sides may be required to minimise contact with energised powerlines during periods of high winds and storms.

Through pruning is to be completed following the principles of directional pruning in order to minimise the re-growth of branches toward the powerline.

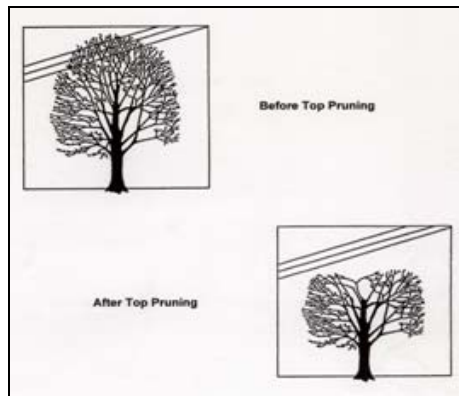
Figure 3 – Diagram of Through Pruning



**13.3 Top Pruning (Crown Reduction)**

Top pruning is defined as the removal of branches growing up toward the conductors from trees directly beneath the conductors. An example of correct top pruning is illustrated in Figure 4.

Figure 4 – Diagram of the correct method of top pruning (Copied with permission from Environmental Consultants International).

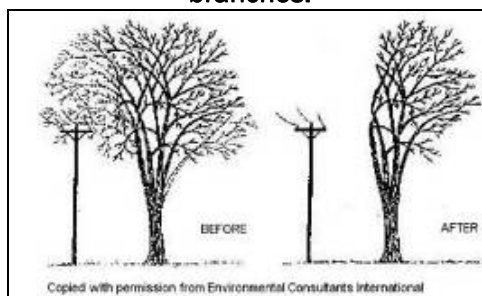


**13.4 Side Pruning with Overhang**

Side pruning with overhang is defined as the removal of those branches on the side of a tree that grows toward and over the powerline. This is shown in Figure 5. All live branches should be removed to a height as indicated in Appendix 3 above the conductors.

All dead branches that overhang the conductors shall be removed, regardless of the species or height above the powerline.

Figure 5 – Diagram illustrating the correct method of pruning to provide sufficient clearance to overhanging branches.



### 13.5 Unstable and Hazardous Trees

Trees of any species and diameter originating from fallen decaying logs, stumps or other unstable rooting positions, any trees with obvious symptoms of advanced decline, i.e. excessive dieback; sparse leaf cover; major decay fungi in evidence etc., within the inspection space that could otherwise damage the powerline shall be removed.

In general unstable/hazardous branches or trees in close proximity to, or capable of threatening safety and the integrity of the powerline, shall be removed. See also Appendix 3 and Section 7.19.

## 14 Alternatives to Pruning

There are a number of methods of maintaining clearance between powerlines and vegetation; the most common method used is pruning. Alternative methods should be considered if they are economically feasible or where the vegetation concerned is of significance or heritage value or listing. Likewise prior to removing a tree other options must be considered. Owners of trees are encouraged to consider alternatives to pruning or removal. Country Energy may also benefit by considering alternatives to pruning to decrease maintenance costs and increase reliability of supply.

### 14.1 Electrical Options

The following electrical options may be considered as alternatives to pruning or removal:

- The use of conductors such as aerial bundled cable to minimise the amount of trimming
- Relocating powerlines to avoid vegetation
- Under grounding mains to eliminate the problem
- Offsetting crossarms to one side to increase clearances; and
- Using taller poles.

Where landowners or Councils seek to implement any electrical options, Country Energy should be consulted. Country Energy may give consideration to contributing to the cost of the work if it reduces the cost of future vegetation control and improves the reliability of the electricity supply.

### 14.2 Non-Electrical Options

#### Tree Transplanting

Tree transplanting is an option that can be implemented in addition to tree replacement. Certain species lend themselves very well to being transplanted. Small plants that are planted near powerlines should be transplanted away from powerlines at the earliest opportunity.

#### Removal

Trees may be removed when necessary to protect the safety of persons and powerlines, or property. Where there is no immediate threat to safety alternative strategies need to be considered and where these alternatives are not feasible in the circumstances (including economically feasible) the tree may be removed. It is not necessary for Country Energy seek permission from the local Council for the removal of trees on private property when the removal is necessary for electrical safety reasons or to protect the electricity supply system. This will generally be with the landowner/occupier's permission and may be at their expense. Consultation and statutory approval from appropriate bodies will be required where dangerous trees are protected by Legislation.

Country Energy may issue a notice to the landowner/occupier to remove a tree if the tree is or may be a continual threat to the safety and the integrity of the powerline. A landowner acting on a Country Energy request or notification does not require permission from Council to remove a tree.

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**14.3 Removing trees**

If Country Energy has reasonable cause to believe that a tree could destroy, damage or interfere with its electricity works, or make its works a potential cause of bush fire or cause risk to public safety, it must take appropriate action.

Therefore, Country Energy will seek the removal of trees where:

- Other options including undergrounding of powerlines, replacement with ABC, relocation of powerlines, or transplanting the tree are not economically feasible
- Safety is compromised
- The electricity works and supplies are threatened
- There is an inappropriate species eg. those listed in Section 8.5.1
- The trees do not respond to directional pruning
- The trees can not be maintained for appropriate periods of time due to their growth characteristics
- The health of the tree is such that to leave it would pose a threat to the power line and to the safety of the community; and
- The aesthetics of the tree are such that continued trimming irreparably damages it.

Council and/or Country Energy may carry out consultation with adjoining landowner/occupiers and/or the community where street trees are to be removed.

The tree owner's, who may include Council, permission should be sought when any tree is to be removed by Country Energy. Country Energy should give the owner notice where the land owner/occupier is to remove the tree. The requirements of Threatened Species Legislation shall be considered in this process. Notice is not required in an emergency; Country Energy may remove the tree and do so at its own expense.

Owners are encouraged to seek Council permission before removing their trees near powerlines to ensure the requirements of Tree Preservation Orders are fulfilled unless acting on a Country Energy request or notification. Appropriately authorised contractors must be used, as this work is extremely dangerous. Refer to Section 6.2 for safety requirements when carrying out this type of work.

Protected trees or other vegetation must not be removed unless the appropriate consultation and statutory approval, where required, has been sought.

Where trees are removed the stump shall be appropriately treated as per 15.3.1.

**14.4 Unsuitable Species**

Saplings, whose mature height will infringe the clearance space, are best removed or relocated at an early stage of their growth to minimise the safety risks, cost and disruptions to the area in the future. Country Energy considers the trees listed in Section 8.5.1 and other tall growing species as unsuitable under or near powerlines.

#### 14.5 Strategies for Removals

The following are strategies that may be used to facilitate the removal process:

- Replanting with a suitable species prior to removal of the inappropriate species
- For a group of trees a staged removal with staged replacement is preferable as this reduces the visual impact
- Removal of the tree and subsequent replacement
- Replant on the other side of the street prior to any removals; and
- Country Energy encourages Council and other groups to consult with the local community when removals of trees are being considered.

#### 14.6 Replacement of Trees

Country Energy encourages the replacement of trees that are removed provided that the trees are planted away from powerlines. Country Energy endeavours to work with property owners and Councils to formulate action plans to identify and replace inappropriate trees.

Tree replacement arrangements should not perpetuate the problem, but solve it. Replacement plants shall be planted in accordance with Country Energy's Planting Guide.

Country Energy will assist with the supply and replacement of trees that have been inappropriately planted after the powerline was first constructed. Any replacement will generally be of a small size as these plants generally establish better, faster, and after several years will outgrow in size an initial larger plant.

Country Energy encourages the replacement of trees with species that are native to the area; this will assist in the preservation of the ecological integrity of the area.

### 15 Process for Saplings and Regrowth Control

It is essential that saplings and regrowth of tall growing species are controlled to maintain the security and viability of the electricity supply.

Vegetation should be retained in the following situations wherever practical:

- Low growing species, particularly at creek or river crossings. However the requirements for access for maintenance or repairs may take precedence
- Low growing species for the habitat for threatened species
- In steep gullies, (particularly where the connectivity of wildlife habitat and erosion prevention are of major importance) where the power line will be well above the maximum height of the prevailing mature vegetation and the clearance space will not be compromised; and
- If there is no immediate threat to safety or the powerline, vegetation may be retained temporarily where the vegetation is being used for the rearing of young fauna.

Sapling/regrowth control shall be carried out in accordance with this Vegetation Management Plan. Landowners are encouraged to complete this work themselves.

Methods generally used for the reduction of saplings and regrowth are:

- Slashing/Mulching
- Hand cutting
- Herbicide treatment; and
- Biological (eg, grazing, retention of low growing native plant species for ground coverage).

Dozing, mulching equipment and other methods may be used following appropriate site assessment.

#### **14.7 Hand cutting**

Hand cutting without the application of a herbicide is usually ineffective. The use of herbicides in this process is covered in Section 15.3. Landowners who desire that herbicides not be used on their property are encouraged to control any vegetation affecting powerlines themselves, on a regular basis.

#### **14.8 Slashing/Mulching**

Slashing/mulching may be used in areas of Country Energy's system that are dominated by medium to high-density saplings. In such areas slashing/mulching is generally more practical and cost effective than hand cutting the vegetation. However, this technique is restricted by steep slopes, rocky terrain and wet sites. A mixture of hand cutting and herbicide use will be used in these areas. Grassed areas will generally not be controlled using slashing/mulching.

#### **14.9 Herbicides**

The use of herbicides will result in reductions of sapling density and provide a long-term solution to tall growing vegetation conflicts with powerlines. An important consideration is that the herbicide program be environmentally safe and supervised. Those personnel who are applying herbicides shall be qualified in compliance with legislative requirements and follow the manufacturer's recommendations for application. All herbicides must be used in a manner consistent with the labelling on the container.

Those, including organic growers, who do not wish to have herbicides used on their property, are encouraged to control vegetation themselves or look at alternative solutions as listed in Section 14.

Herbicide use may not be appropriate for all portions of Country Energy's system, but there are many opportunities for herbicide use to limit future conflicts with vegetation and powerlines. The following methods detail the manner in which herbicides may be utilised:

#### **14.10 Cut Stump Treatment**

Hand cutting of target vegetation followed by stump herbicide treatment will be used where appropriate. All unsuitable vegetation is to be cut to a stump, herbicide is then immediately applied to the outer edge (cambium) of the cut stump and any exposed bark. The cut stump treatment is very selective and, will generally not damage adjacent vegetation. This is the preferred method where aesthetic appearance is to be preserved such as where the vegetation is directly on the side of main roadways or adjacent to residences. This method is also used to prevent regrowth where mature trees are removed.

**14.11 Selective Low-Volume Basal Treatment**

Low-volume basal treatments can be applied with backpack pump sprayers and low-volume spray wands. The herbicide mixture should be evenly applied to all exposed bark on the lower 18 cm. of each stem. Due to the high selectivity of this technique, compatible species can be retained and encouraged. Diesel is often mixed with the herbicide.

**14.12 Foliar Application**

Foliar application can be used on vegetation generally less than 2.5 metres in height and the application are to be directed at the target, but not to the point of run off. The selectivity of the foliar spray technique is achieved through application of the non-compatible species while not applying to compatible species or by the use of selective herbicides.

**14.13 Stem Injection**

Stem injection is the application of herbicide to growing saplings and trees where the plant is left to stand and die in its growing position. Only those plants that are to be prevented from growing are treated.

**14.14 Special Requirements for Herbicide Use**

Special requirements for herbicide use include:

- Near Creeks, Dams, Sensitive Crops and Other Sensitive Areas - Trees or sapling regrowth to be treated near creeks, dams, sensitive crops and other sensitive areas shall be treated with a suitably registered herbicide and generally by cut stump application or stem injection methods, or as otherwise agreed by the landowner or management agency
- In Paddocks Containing Livestock - Stem injection shall be the preferred method of herbicide application where stock are grazing or as otherwise agreed by the landowner
- Cattlecare, HACCP and other Quality Controlled Properties - Cattlecare and HACCP property owners and vegetation management workers will need to liaise where herbicides are to be used. Herbicides will be used in accordance with label and MSDS requirements.

**14.15 Biological Control**

Many of Country Energy's powerlines run through rural areas where grazing or cropping provides a natural means of keeping naturally sown tall growing saplings away from powerlines.

The retention of low growing species also discourages the growth of tall growing species. Therefore the retention of low growing species is desirable in many locations where access is not a problem. However, the requirement for access must take precedence over the requirement to retain low growing species.

Where feasible, biological control is the preferred control method for saplings and other regrowth.

**16 Railways**

Country Energy is required to liaise with Rail Access Corporation to obtain access to the rail corridor prior to performing vegetation management to ensure safety requirements are met.

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**17 Tree Growth Regulators**

Tree growth regulators may be used to control the growth of trees so as to minimise the pruning required and thereby retaining some trees that would otherwise require removal. New techniques for the application of tree growth regulators have been developed including the application by soil injection. This will only be carried out by the tree owner or with the tree owner's authority and may be at the tree owner's expense.

**18 Corridor Width**

In order to comply with bushfire mitigation regulations and create a safe and reliable supply of electricity, Country Energy needs to maintain an adequate corridor width, particularly in rural areas. Country Energy therefore controls vegetation resulting from regrowth, self-sown trees, or planted trees.

Original corridors cut through timbered areas may not have been cleared to the proper width. The distances specified in Table 2 will be used as a guide where corridors are assessed as requiring widening. An additional allowance for conductor movement from wind loading may also be required.

Table 2 may not provide adequate clearance in situations with very tall growing species, as the trees will close in over the top of the power lines. Many corridors are already wider than the requirements in Table 2; it is in Country Energy's interest to maintain these corridor widths to prevent future problems. Tall trees should be at a distance from the powerline at least equal to their potential height.

<b>Voltage</b>	<b>Minimum Corridor Width</b>
LV	20m
11kV	20m
19.1kV	20m
22kV	20m
33kV	30m
66kV	30m
132kV	45m

At each site consider span length, blow out of conductor from wind loading, potential tree height and spread.

**19 Access for Maintenance or Repairs**

Heavy vehicle access is required to powerlines to allow for routine and emergency maintenance. It is a requirement of The Electricity Supply Acts and Country Energy's Customer Contract that access shall be provided for these purposes. If crops are planted in the immediate vicinity of powerlines then the grower risks damage to these crops if access is required. Tall growing crops should not be grown near powerlines.

## 20 Auditing Process

Vegetation Management carried out by Country Energy will generally be subject to audit by Country Energy Vegetation Management Supervisors or Environmental Auditors. These are conducted to ensure compliance with this Vegetation Management Plan and other requirements. Particular attention should be paid to compliance with the pruning and removal of trees and the criteria for determining the extent of trimming or removal.

For trees that have been pruned, the auditor will consider:

- Arboriculture techniques (quality of pruning)
- Clearances
- Debris disposal and tidiness of sites
- Environmental considerations
- Sapling and regrowth removal; and
- Herbicide use.

## 21 Evaluation of Contractors and Tendering Process

Under some circumstances Country Energy may decide to let vegetation management to private contractors. The tendering process is competitive and contracts will be let using the most cost-effective process available to Country Energy, whilst achieving the requirements of this Vegetation Management Plan.

A standard evaluation of these contractors is utilised to ensure works are carried out in a professional and tradesman like manner with due consideration for safety and the environment.

This evaluation includes but is not limited to:

- Appropriate insurances
- Appropriate employee qualifications
- Health and Safety Policy/Procedures
- Environmental Policy and Procedures
- Risk Assessment
- Quality Assurance; and
- Previous Utility Work.

## 22 Responsibilities / Allocation of Costs

### 22.1 Country Energy

Country Energy will endeavour to ensure that vegetation is kept clear of its network of power lines. Trimming or removal is required where the vegetation could destroy, damage or interfere with its electricity works, or could make its electricity works become a potential cause of bush fire or potential risk to public safety. Country Energy will also carry out clearing of vegetation to provide safe clearance to streetlight conductors and lanterns in overhead powerline areas.

This does not mean that Country Energy is responsible for all the costs involved in this work. In NSW Country Energy is responsible for trimming or removal costs for naturally propagated trees, those trees that are older than the power line and areas detailed as protected in the Electricity Supply Act 1995 (NSW).

In Queensland Country Energy carries out vegetation management affecting all Country Energy network assets at its own cost.

## **22.2 New South Wales Councils**

Country Energy seeks to work with Councils in a cooperative manner to ensure effective vegetation management in the best interests of the community as a whole. It will endeavour to enter into “In Principle” agreements regarding vegetation management near power lines or continue with existing arrangements with Councils, when these have proven effective.

Under NSW legislation, Councils are responsible for control costs for vegetation, on land under their control (including road reserves and parks) that has been planted and allowed to grow directly under or along side powerlines and where the vegetation could destroy, damage or interfere with Country Energy’s electricity works, or could make Country Energy’s electricity works become a potential cause of bush fire or potential risk to public safety.

Where Councils carry out vegetation control works near powerlines then this work should be carried out in accordance with this Vegetation Management Plan.

## **22.3 New South Wales Private Landowners/Occupiers**

Country Energy also seeks to work in a cooperative manner with private landowner/occupier’s to resolve Vegetation Management issues.

Under NSW legislation, private landowners are responsible for trimming and removal costs for vegetation on their property where the vegetation has been planted and allowed to grow directly under or along side powerlines and could destroy, damage or interfere with Country Energy’s electricity works, or make the electricity works become a potential cause of bush fire or a potential risk to public safety.

Country Energy contractors and employees may provide a quotation to the landowner/occupier for all work required on service lines affected by planted vegetation. The landowner/occupier is at liberty to engage an appropriately authorised independent contractor to carry out this work.

Landowners/occupiers should be aware that the optimum time to have vegetation works carried out at a cost-effective price is when Country Energy’s contractors or employees are working in the area. If the landowner/occupier wishes to implement alternative solutions to prevent future vegetation and powerline conflicts then these solutions will be at the landowner/occupier’s cost.

Where landowners carry out vegetation control works near powerlines, then this work should be carried out in accordance with this Vegetation Management Plan.

## **22.4 Queensland Councils and Private Landowner/Occupiers**

Any vegetation affecting private powerlines is the responsibility of the owner.

Health and Safety Legislation requires that dangerous situations are not created. Planting trees near powerlines can create a dangerous situation; therefore trees should be planted away from powerlines.

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## 23 **Review of Tree Management Plan**

Periodical reviews will be conducted to promote opportunities for continual improvement of the Vegetation Management Plan.

Interested parties may provide relevant comment to assist in the continual improvement of this Vegetation Management Plan. This comment will be considered in subsequent reviews of the Plan.

Major changes in the Vegetation Management Plan will only be made after consultation with the appropriate entities and the community.

**ATTACHMENT A – COUNTRY ENERGY'S HEALTH AND SAFETY POLICY**


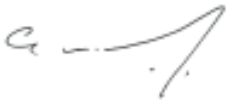
# Health and Safety Policy

Country Energy is Australia's largest regional utility business. The health, safety and well-being of our employees, customers, contractors, visitors, labour hire employees and the public is our highest priority. Our aim is to integrate health and safety into all that we do.


**To demonstrate our commitment to health and safety, we will:**

- Strive for an incident free workplace
- Provide a safe and healthy working environment through the effective implementation of this policy
- Apply a risk management approach to our activities, products and services, consistent with the health and safety risk they pose
- Comply with relevant legislation, regulations, standards, codes and licences
- Ensure all employees are trained and have the knowledge and skills they need to undertake their work in a healthy and safe manner
- Require supervisors, employees, contractors, labour hire employees and visitors to abide by all health and safety policies, procedures and other requirements
- Engage in effective consultation and open communication about health and safety with our employees, contractors and labour hire employees
- Conduct incident investigations fairly, with a focus on implementing preventative actions
- Continually measure and improve our health and safety objectives and targets
- Promote a 'Safety First' culture where everyone watches out for their workmates, families and local communities.

This policy applies to all employees, agents and contractors of Country Energy and to any person or organisation that acts for or represents it.



Craig Murray  
MANAGING DIRECTOR  
1 July 2007



**ATTACHMENT B – COUNTRY ENERGY'S ENVIRONMENTAL POLICY**


# Environmental Policy

Country Energy is Australia's largest regional utility business. As an environmentally conscious and responsible company we are committed to caring for and protecting our natural environment. Our aim is to integrate responsible environmental management into all that we do.


**To demonstrate our commitment to the environment, we will:**

- Strive to be an incident free organisation
- Use best practice options to reduce and prevent pollution
- Apply a risk management approach to address environmental impacts arising from our activities, products and services
- Comply with applicable legislation, regulations, standards, codes and licences which relate to our environmental aspects
- Ensure supervisors, employees and contractors are trained and have the knowledge and skills they need to undertake their work in an environmentally responsible manner
- Require our people and visitors to abide by all environment policies, procedures and other requirements
- Engage in effective consultation and open communication about environmental issues
- Conduct incident investigations fairly, with a focus on implementing preventative actions
- Establish measurable objectives and targets based on our significant environmental aspects to continually review and improve our environmental performance
- Secure renewable energy from greenhouse friendly sources to address the impacts of electricity generation.

This policy applies to all employees, agents and contractors of Country Energy and to any person or organisation that acts for or represents it.



Craig Murray  
MANAGING DIRECTOR  
1 July 2007

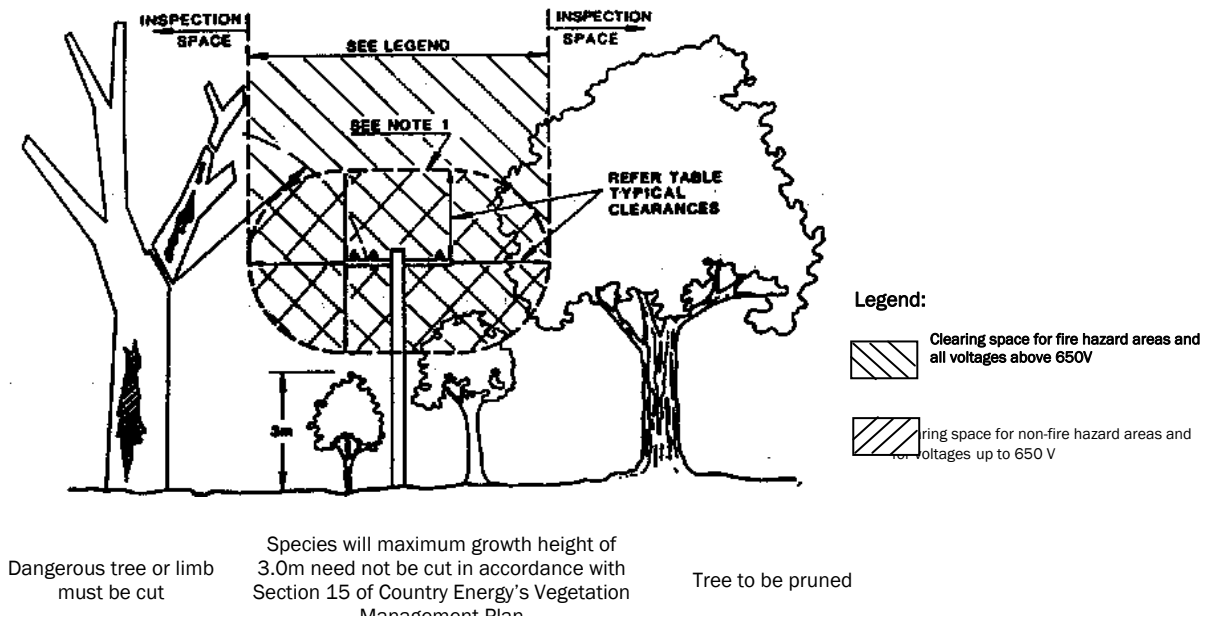


CEPG8008/0001

### ATTACHMENT C – MINIMUM VEGETATION CLEARANCE DIAGRAMS

#### ATTACHMENT C1: BARE CONDUCTORS AND INSULATED SERVICE LINES TREE PRUNING – TYPICAL CLEARANCE

Voltage	Clearance at Pole to Nearest Conductor in Rest Position	Clearance Along Middle 2/3 of Span to Nearest Conductor in Rest Position	
Insulated Service Wires	0.5m	0.5m	
Up to 650V See Note 3	1.0m	1.0m	OR SAG at 50°C plus 0.5 m (whichever is the greater)
>650V to 22 kV	1.5m	1.5m	
>22 kV up to 66 kV	2.25m	2.25m	OR SAG at 50°C plus 1.0 m (whichever is the greater)
>66 kV up to 132 kV	3.0m	3.0m	

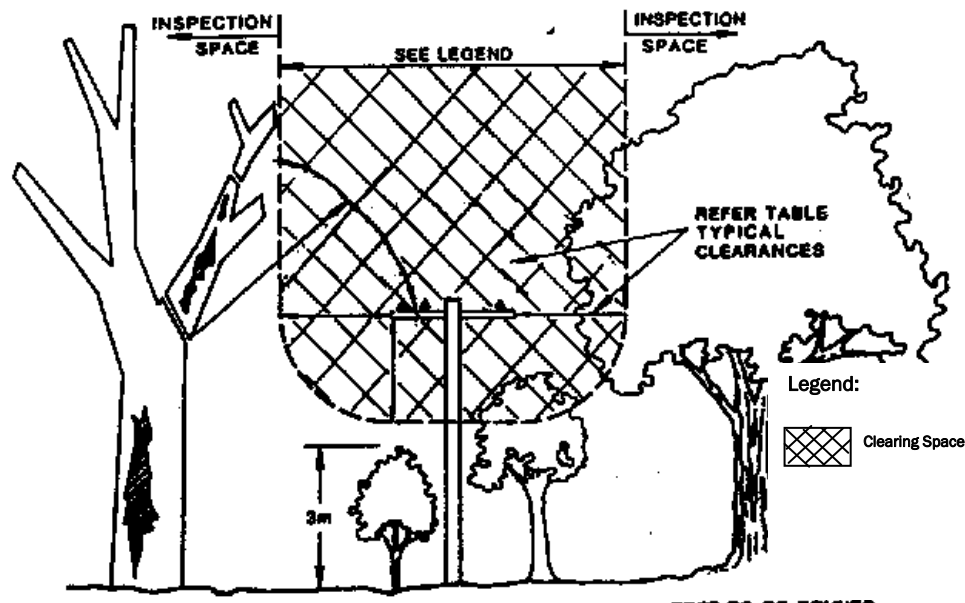


**NOTES:**

- 1 The extent of the clearing space may be limited as shown where in the opinion of the delegated Country Energy Officer part of a tree in the clearing space does not constitute a serious hazard to such conductors. This shall only apply in the case of conductors operating at voltages up to 650V.
- 2 Additional clearance shall be allowed for regrowth.
- 3 An additional clearance of 0.5 m shall be added to the nominated clearances for fire hazard areas. Some clearing in the inspection space may also be appropriate.
- 4 The appropriate clearance in each situation will vary depending on local circumstances (eg, type of vegetation, climate, locality, etc). In all cases the most appropriate clearance is a matter for determination by the delegated Country Energy Officer.
- 5 Attachment C3 can be used for insulated service wires known to be XLPE systems.
- 6 These clearances allow for normal whip by trees in high winds. However, additional allowances may have to be made for very slender trees. No limb should be permitted to overhang the clearing space or any conductor in any fire hazard area.

ATTACHMENT C2: COVERED CONDUCTOR (CC) VOLTAGES ABOVE 650V AND UP TO AND INCLUDING 22 KV  
TREE PRUNING – TYPICAL CLEARANCES

Voltage	Clearance at Pole to Nearest Conductor in Rest Position	Clearance Along Middle 2/3 of Span to Nearest Conductor in Rest Position
>650V and <= 22 kV	1.0 m	1.0 m or sag of 50°C plus 0.5 m (whichever is the greater)



Dangerous tree or limb must be cut      Species will maximum growth height of 3.0m need not be cut in accordance with Section 15 of Country Energy's Vegetation Management Plan      Tree to be pruned

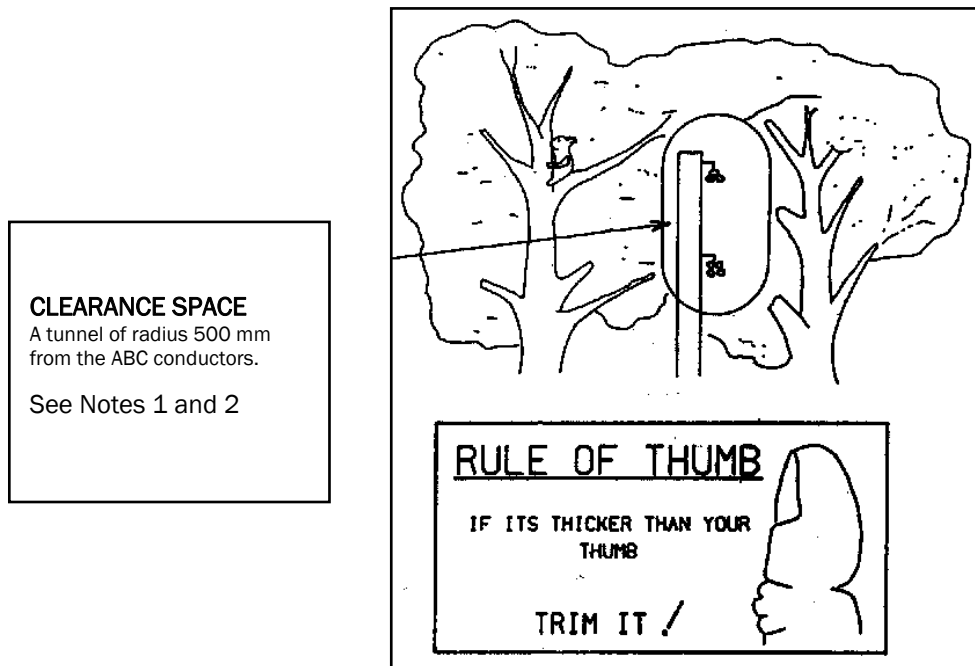
NOTES:

- 1 Where the original insulation material has been removed, the clearance for Attachment C1 will apply. This requirement applies even if some form of covering is in place.
- 2 Additional clearance shall be allowed for regrowth.
- 3 An additional clearance of 0.5 m shall be added to the nominated clearances for fire hazard areas. Some clearing in the inspection space may also be appropriate.
- 4 The appropriate clearance in each situation will vary depending on local circumstances (eg, types of vegetation, climate, locality, etc). In all cases the most appropriate clearances is a matter for determination by the delegated Country Energy Officer.
- 5 These clearances allow for normal whip by trees in high winds. However, additional allowances may have to be made for very slender trees. No limb should be permitted to overhang the clearing space or any conductor in any fire hazard area.

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**ATTACHMENT C3 - INSULATED AND COVERED CONDUCTOR THICK (CCT) CABLE SYSTEMS VOLTAGES UP TO AND INCLUDING 22 KV TREE PRUNING – TYPICAL CLEARANCES**

**NOTES:**

- 1 Where the original insulation material or screen has been removed, the clearances show for Attachment 3A, will apply. This requirement applies even if some form of covering is in place.
- 2 Trim any branches or twigs thicker than you thumb (approximately 15 mm diameter) which are in the aerial bundled cable clearance tunnel, or will encroach into the tunnel within the pruning cycle (typically 3 years), under still air conditions. The clearance tunnel should allow for variation in sag between support structures.
- 3 Leaves and twigs are otherwise allowed to remain in the clearance tunnel.
- 4 Trees and branches which overhang or nearly overhang the clearance tunnel and which are obviously likely to break and fall onto the conductors within the next pruning cycle (typically 3 years) should be trimmed or removed.
- 5 Access to all support structures for construction and maintenance needs to be allowed to ensure reliability and employee safety during operations and maintenance work.
- 6 The appropriate clearance in each situation will vary depending on local circumstances (eg, type of vegetation, climate, etc). In all cases the most appropriate clearance is a matter for determination by the delegated Country Energy Officer.

## 24 REFERENCES

### Country Energy Documents

CEM7022.01 - Environmental Operations Manual: Environmental Impact Assessment - NSW

CEPG2021 – Removing Vegetation Near Overhead Powerlines

CEPG2010 – Vegetation Clearing Guidelines for New Powerlines

CEPG2299 - Pesticide Notification Plan

CEPG8022 - Bush Fire Risk Management Plan

CEPG8029 - Network Management Plan

### Acts, Regulations and Other References

#### National

Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)

#### New South Wales

Australian Heritage Commission Act 1975

Electricity Supply Act 1995

Electricity Supply (General) Regulation 2001

Environmental Planning and Assessment Act 1979

Fisheries Management Act 1994

Heritage Act 1977

Native Vegetation Act 2003

National Parks and Wildlife Act 1974

National Parks and Wildlife Regulation 2002

Noxious Weeds Act 1993

Occupational Health and Safety Act 2000

Rural Fires Act 1997

Soil Conservation Act 1938

State Environmental Planning Policies

Threatened Species Conservation Act 1997

Australian Standard AS4373 – Pruning of Amenity Trees

Code of Practice for the Amenity Tree Industry (NSW)

ISSC3 Guideline for Managing Vegetation Near Power Lines

Urban Erosion and Sediment Control Field Guide (NSW Department of Land and Water Conservation)

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Victoria

Electricity Safety Act 1998

Electricity Safety (Electric Line Clearance) Regulations 2005 (Vic)

Electricity Safety (Network Assets) Regulation 1999

Queensland

Electricity Act 1994 (Qld)

Environmental Protection Act 1994

Electricity Safety Act 2002

Electrical Safety Regulation 2002

Workplace Health and Safety Act (Qld) 1995;

Code of Practice – Working near Exposed Live Parts Electrical Safety Act 2002

**25 Revisions**

Issue Number	Section	Details of Changes in this Revision
2	8.5	Update planting guide image
3	All	Plan updated to new template Document Number used to be CEK8008
	All	Updated from CE-IN-CONFIDENCE to FOR-PUBLIC-RELEASE and also new logo and font
4	All	Update to new External Template