



Code of Practice for Powerline Clearance around Vegetation



**CODE OF PRACTICE FOR POWERLINE
CLEARANCE AROUND VEGETATION**



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CODE OF PRACTICE FOR POWERLINE CLEARANCE AROUND VEGETATION



1 INTRODUCTION

Trees, shrubs and other vegetation enhance our lifestyles. They provide shade and privacy around our homes, offer a habitat for birds and wildlife, and add aesthetic value to our gardens. However, vegetation interfering with powerlines is a proven risk to public safety, the environment and one of the main causes of power supply problems. In short, powerlines and trees simply don't mix.

Effective management of vegetation around powerlines is essential for preservation of public safety, the environment and reliability of electricity supply. This can be best achieved through the planting of appropriate species near powerlines and the progressive replacement of vegetation that currently endangers public safety and the reliability of electricity supply.

South East Queensland is subject to extreme weather conditions, ranging from severe storms to drought. Dry conditions increase the risk of fire. Strong winds and waterlogged ground can result in trees falling across, and bringing down powerlines, especially where inappropriate vegetation species are growing too close to powerlines. Fallen powerlines can kill.

ENERGEX maintains a distribution system consisting of approximately 35,000 kilometres of overhead poles and wires. Therefore, ENEREX's investment in keeping vegetation clear of powerlines is immense.

Our vegetation management practices and strategies support the principles of ENEREX's environmental policy.

In the scope of vegetation management, it is our intent to achieve a balance between our environmental responsibilities and ensuring a safe, reliable and economical electricity supply to our customers.

ENERGEX recognises that there are sites with vegetation of significance located near powerlines requiring special consideration and treatment because of their importance to the community and the environment.

1.1 Objectives of this Code of Practice

The objectives of this Code are to:

- ensure public safety;
- minimise vegetation related interruptions to electricity supply;
- reduce the risk of fire ignition;
- establish management practices which balance electrical safety, reliability of the electricity system and community costs, with ecological and conservation values; and
- communicate ENEREX's commitment and endeavours to secure public safety and responsible vegetation management practices to the community.

1.2 Application of Code

The Code applies to any ENEREX powerline that operates at 132,000 volts or less.

1.3 Purpose of Code

The purpose of this Code is to set out:

- the minimum safety clearances that must be maintained between vegetation and powerlines, as determined by ENEREX;
- the practices ENEREX will employ to ensure that the safe clearances are maintained;

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- ENERGETX's obligations to its customers and the community in the maintenance of safe clearances; and
- vegetation management and planting practices that ENERGETX customers and the community should adopt to minimise the risk of vegetation contacting powerlines.

This Code of Practice for Vegetation Powerline Clearance 2004 provides a clear statement of ENERGETX obligations and commitment to its customers, as well as an outline of its vegetation management practices. As such, this code does not fully detail all the plans procedures and other activities and initiatives that support the achievement of the codes objectives.

1.4 Legal Responsibilities

1.4.1 ENERGETX

ENERGETX has legal responsibilities to maintain safe clearances between vegetation and powerlines under Section 75, Section 137, and Section 148 of the Electrical Safety Regulation 2002, which reads:

Section 75: Trimming of trees near overhead electric line

The person in control of an overhead electric line must ensure that trees and other vegetation are trimmed, and other measures taken, to prevent contact with the line, that is likely to cause injury from electric shock to any person, or, damage to property.

Section 137: Clearance from exposed conductive parts and separation of conductors in same circuit

Exposed conductors in the same circuit of an overhead electric line forming part of the works of an electricity entity must be separated so that as far as practicable, a conductor does not come in contact with or within arcing distance of –

- (a) another conductor; or*
- (b) an earthed exposed conductive part; or*
- (c) a stay wire forming part of the overhead electric line.*

Section 148: Trimming of trees near overhead electric lines

An electricity entity must ensure that trees and other vegetation are trimmed, and other measures taken, to prevent contact with an overhead electric line forming part of its works that is likely to cause injury from electric shock to any person, or, damage to property.

Vegetation management activities are subject to a range of other statutory requirements that take precedence over this code of practice.

For example, some of these requirements relate to:

- obtaining approvals and permits for work in protected areas and sensitive environments such as fish habitats, marine and National Parks,
- notification of traditional owners and native title claimants,
- identifying sites as areas of cultural significance and carrying out assessments where required,
- obtaining permits for clearing of vegetation on freehold land, and
- obtaining tree clearing permits for clearing of vegetation on leasehold land (Land Act 1994).

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1.4.2 Landowners

Under Section 148 of the Electricity Safety Regulation 2002, an electricity entity where overhead electric lines form part of its works, must ensure/arrange that vegetation around electric lines is maintained.

In most situations, electricity is supplied to a property by a service cable, owned by ENEREX. This is attached directly to a dwelling or building known as the point of supply. Where the distance to the attachment point is too far for direct connection, an intermediate pole is erected, which is then the point of supply. This pole and subsequent poles and wires form an electric line which is normally the property and responsibility of the landowner.

There are other situations where electric lines emanate from a building on the property and carry the electricity supply to pumps or other buildings or equipment. These lines are generally the property and responsibility of the landowner.

If landowners or occupiers are unsure of the ownership of electric lines, they should contact the ENEREX Customer Contact Centre on telephone 13 12 53.

Landowners must exercise care in ensuring that appropriate safety clearances are maintained when conducting pruning work. The relevant clearances and practices in this code should be used for guidance and only persons appropriately trained and accredited should undertake these works.

2. CUSTOMER CHARTER

2.1 General

ENERGEX recognises that the vegetation it manages is the property of individual landowners. Accordingly, ENEREX will carry out its responsibilities in an informative and consultative manner, providing owners the opportunity to inquire or comment on proposed clearing and pruning.

ENERGEX has established processes and guidelines to ensure that those affected by clearing and pruning activities are notified of planned works and where applicable, consulted with regard to how the works will be conducted.

Having experience and knowledge of electricity networks ENEREX will assist and provide general advice to customers and the public on management, planting and maintenance of vegetation close to powerlines. ENEREX has an obligation to ensure public safety and the integrity of the electricity network.

2.2 Notification, Consultation and Negotiation

ENERGEX will, notify consult and negotiate, when and where applicable with landowners and land managers.

ENERGEX will notify by written notice or verbally:

- persons occupying or managing private land affected by programmed clearing or pruning at least one week prior to the work,

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- local government authorities or any other relevant body responsible for management of public land affected by programmed clearing or pruning at least one week prior to the work, or as per stakeholder agreements.

When the proposed pruning or clearing will differ from established practices for specific locations, ENEREX will consult:

- landowners and managers of public and or private land, and
- landowners or land managers whose property may be affected by proposed clearing on adjacent public land.

ENERGEX will negotiate with:

- landowners or land managers, arrangements for access to powerline easements,
- landowners and managers of public and or private land, arrangements for the introduction of chemical treatment of vegetation on their land,
- landowners and managers of public and or private land in urban areas, arrangements for removal and disposal of mature vegetation on their land which could endanger the powerline, and
- landowners and land managers in rural areas, where the removal of the vegetation may affect the use of the land.

2.3 Assistance to the Public

ENERGEX will assist persons responsible for vegetation management to ensure that any pruning or clearing conducted near powerlines can be done safely. When requested ENEREX will:

- Assess and advise of safe working distances for pruning or clearing activities around powerlines; and
- Recommend safe methods for removing vegetation near powerlines.

Note. This may require ENEREX to de-energise powerlines, do preliminary pruning to enable safe access, or take other precautions to ensure the safety of those working near the powerline.

When requested, ENEREX will provide landowners and land managers advice on clearing and pruning alternatives, such as powerline relocation or conversion to an insulated system, and any associated costs.

2.4 Emergency Clearing

In emergencies, ENEREX must remove vegetation that poses an immediate risk to public safety and security of the electricity network. In such circumstances, pruning may be undertaken without consulting landowners or land managers.

2.5 Disputes

Disputes may arise from decisions made by ENEREX in carrying out its responsibilities to maintain safe clearances. ENEREX will endeavour to resolve any dispute with those affected.

If the dispute can not be resolved, the matter may be referred to the Energy Consumer Protection Office (ECPO) who will decide on processes for resolving the matter.

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Notwithstanding the nature of the dispute and the need to resolve the dispute in an amicable manner, ENERGEX's responsibility to maintain safe clearances cannot be compromised.

3. ELECTRICITY SYSTEMS AND VEGETATION CLEARANCE

3.1 Introduction

ENERGEX's electricity network is primarily comprised of bare wires strung between poles, as are most electricity networks in Australia. These systems are economical to construct and maintain, and are easily modified to meet changes in demand. Sections of the ENERGEX network include insulated, overhead and underground systems.

The cost of building and maintaining the electricity supply system is factored into ENERGEX's tariffs. An independent state regulator (Queensland Competition Authority) ensures that expenses are balanced against achieving reasonable levels of reliability of supply.

ENERGEX will secure every practical and affordable opportunity to introduce insulated systems. This process must be managed over time and coordinated with the necessary replacement of aging assets, which is provided for in the regulated funding arrangements.

3.2 Bare Wire Systems

Traditionally, powerlines have been comprised of bare conductors supported by insulators on poles and towers. The insulating medium for the live wires to ground, other structures, or buildings and vegetation is the surrounding air. This relatively low cost type of construction has enabled South East Queensland to be reticulated with electricity.

The space surrounding bare wire system conductors must be kept free of vegetation to avoid discharge of electricity from the conductors to the vegetation and the ground. The dimensions of the necessary 'clearance zone' around conductors vary, and are dependent on a number of factors, as outlined in Section 6.

When planning construction of a new powerline, ENERGEX will ensure that:

- the selection of a system is the optimal cost alternative and meets town planning requirements,
- the route of the line avoids unnecessary and recurrent clearing and pruning of remnant vegetation, and
- where practicable, vegetation species suitable for growing near the powerlines are not removed.

In selecting the route of the line, ENERGEX will establish the most economical, technically acceptable option, taking into account the ongoing costs of vegetation management, the objectives of our environmental policy, and maintenance of the distribution network. Appropriate approvals will be sought from relevant bodies responsible for the management of any land the route may pass through.

3.3 Underground Cables

The cost of underground cable systems remains an expensive alternative to overhead lines. In most new residential areas, it is generally a local government-planning requirement that the developer of residential land provide underground electricity supply. Greater economy is achieved if the underground system is installed as part of general civil works. The investment in an underground system is reflected in the sale price of the allotments.

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Clearly underground cables will overcome most of the ongoing vegetation issues associated with overhead bare wire lines. However, the cost to relocate existing high voltage and low voltage lines underground in established roadways cannot be justified. The expense is not funded under current regulated financial arrangements.

Generally, ENEREX will not replace bare conductor systems with underground cables to avoid the clearing and pruning of vegetation, unless others assist in funding the cost of the works.

3.4 Insulated Overhead Line Systems

Two types of insulated overhead line systems are commonly used for low voltage supply, Aerial Bundled Cable (ABC) and service cables. ABC is an insulated cable layed up in a bundle and supported on poles. A service cable is the insulated wire connecting the customer's installation to the network.

These systems being insulated require reduced clearance zone to that of bare conductors. The design of ABC and service cable allows occasional contact with vegetation without disturbance to the electricity supply. However, continual rubbing by limbs will damage the cable insulation causing it to fail. For this reason, some clearance zone must be maintained to substantial vegetation.

At higher voltage (11 kV) ENEREX has introduced a covered conductor system in order to improve reliability. This system is however not classified as providing complete insulation and therefore requires clearance zones are similar to bare conductors.

ENERGEX has adopted ABC as the replacement for its low voltage bare wire system when the bare cables and fittings are no longer serviceable, or have insufficient capacity for the electricity supply requirements. The cost of replacing unserviceable bare wires is factored into electricity charges.

ENERGEX will not normally replace mechanically sound, or suitably sized bare conductors solely to allow reduced clearances to vegetation. This expense cannot be funded without increasing the cost to supply electricity.

4. MANAGING VEGETATION NEAR OVERHEAD LINES

4.1 General

ENERGEX's electricity network consists of a high voltage sub-transmission system that connects cities and rural areas, and high and low voltage distribution systems that delivers electricity to customers' homes and businesses.

ENERGEX's objective for the management of vegetation around this network is to achieve a safe and reliable electrical system, based on management practices that will minimise the need for recurrent clearing and pruning of vegetation.

Vegetation growing on public land and private properties in urban areas is generally planted and nurtured by the landowner or manager. However, vegetation in rural areas is generally naturally occurring and indigenous to the area. Subsequently vegetation is managed differently in cities, rural areas and around sub-transmission lines, as outlined below.

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All vegetation management activities are undertaken with regard to ENEREX's policies and procedures for controlling weed spread.

ENERGEX has a legal obligation to notify landowners and land managers of proposed vegetation management activities. Furthermore, ENEREX will consult and negotiate as appropriate with landowners and land managers regarding its vegetation management practices. (As detailed in Section 2.2).

The conservation value of vegetation in areas of Queensland is also recognised and protected by legislation. ENEREX supports the conservation of these areas and will comply with all legislative requirements and associated Codes of Practice.

ENERGEX recognises the importance of safe work practices when working near overhead electric lines and utilises Chapter 7 of the Electrical Safety Act 2002 – Code of Practice for “Working near Exposed Live Parts” as a minimum safety standard for managing vegetation near overhead lines (refer to Appendix B – Extract from Code of Practice – “Working near Exposed Live Parts” and Appendix C – Exclusion Zones).

4.2 Urban Areas

ENERGEX will prune or clear vegetation using trained and skilled personnel adhering to Australian Standard AS 4373 -1996 – Pruning of Amenity Trees.

As highlighted in Figure 1, the vegetation pruned will include the ‘clearance zone’ and additional ‘regrowth zone’. The size of the regrowth zone enables the establishment of a sustainable pruning cycle, the period of which is determined by local growing conditions and species, and a balance between the effect on vegetation, cost and risk.

In situations where pruning cannot be conducted without destroying the vegetation’s character, amenity and utility value, or encouraging vigorous regrowth removal may be the best solution. Similarly, in some cases pruning may cause the vegetation to become unstable, unhealthy and a public hazard. In such instances, the vegetation will need to be made safe or removed.

ENERGEX will negotiate with landowners and land managers for the removal of unsuitable species and vegetation that endangers the safety or the reliability of the powerline. This will be conducted taking into consideration Important Vegetation as detailed in Section 4.5.

4.3 Rural Areas

The extent and number of powerlines in rural areas requires a different management approach to that used in urban areas. Response times to incidents of vegetation affecting the electricity supply will generally be significantly greater than the time taken in urban areas. Lines can be extremely long (up to 200 km) and access can often be difficult, particularly in adverse weather conditions.

ENERGEX's objective in rural areas is to create a corridor clear of any vegetation that may grow into or fall onto powerlines. This will be achieved by selective chemical treatment where appropriate.

Saplings whose mature height could endanger the line are ideally removed at an early growth stage to minimise future cost and disruption to the area. Low growing vegetation that poses no threat to the reliability and safety of the powerline will not be removed, except to provide maintenance access, or to reduce fire potential through fuel build up.

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In some areas, creating a corridor may not be appropriate, for example through rainforests. Due to the mature height of the trees and rainforests conservation value, the principles of Important Vegetation (Section 4.5) may be adopted.

4.4 Sub-transmission Lines

Sub-transmission lines are the arterial links between major load centres. Consequently, the reliability of these powerlines is critical for all customers. Incidents such as vegetation falling on sub-transmission powerlines can have dramatic consequences and possibly cause power outages to large areas South-East Queensland.

ENERGEX's objective is to create a corridor clear of any vegetation that may grow into or fall onto sub-transmission lines.

Sub-transmission powerlines are present in both urban and rural areas and situated on roadways, and easements created for their passage. The method of creating and maintaining the corridors will differ as follows:

- on easements, roadways or public land in rural areas by chemical treatment where appropriate. Low growing vegetation that poses no threat to the reliability and safety of the sub-transmission line will not be removed, except to provide maintenance access, or to reduce fire potential through fuel build up; and
- on roadways or public land in urban areas, removal of vegetation that will form the corridor will generally be undertaken by hand or machine. Where it's more practical or effective, chemical treatment may be used.

4.5 Important Vegetation

Important vegetation is vegetation identified in liaison with relevant and recognised authorities or bodies such as local government councils, state government departments and community groups, as requiring special attention to preserve its condition. This includes:

- botanically, historically or culturally important vegetation,
- vegetation of outstanding aesthetic or ecological significance,
- the habitat of rare or endangered species, and
- endangered, and of concern regional ecosystems, as mapped by the Queensland Herbarium.

ENERGEX will work with state and local government and other recognised groups, eg. Department of Natural Resources and Mines, Department of Main Roads, Environmental Protection Agency, etc., to establish a management plan for identified important vegetation.

5. RESIDENTS' AND LANDOWNERS' RESPONSIBILITIES

5.1 General

Members of the community can assist in achieving a safer and more reliable electricity supply at lower costs, by taking care when planting and maintaining vegetation near powerlines and service lines.

The majority of vegetation that interferes with the safe and reliable operation of powerlines in urban areas is planted by residents and landowners. Obviously, they do this unintentionally without understanding the consequences of their actions.

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ENERGEX aims to raise the community's awareness of these issues and to assist people in obtaining specialist advice on planting suitable species near powerlines.

5.2 Planting of Vegetation.

When anyone is selecting plants to grow near powerlines the first question must be, how tall will this plant grow?

Species with a mature height greater than four metres should not be planted under powerlines. Furthermore species which produce a spreading horizontal canopy should not be planted where the foliage will grow into the clearance zone (refer Figure 2). In some cases local councils may plant trees with greater potential mature heights on the understanding that such trees will be formatively pruned during their early life so as to not conflict with the power lines.

Taller species that have a short life span, or are easily blown over in storms should not be planted where they could fall into powerlines. As a rule, taller trees should be planted at least the height of the mature tree away from powerlines.

Most people will not be aware of potential tree heights, and safety around powerlines without advice. Most plant nurseries have staff who can provide advice. The ENERGEX Customer Contact Centre (telephone 13 12 53) can provide a free planting guide.

Palms are a common sight in Queensland, however, their rapid growth, height and shedding of fronds make them unsuitable for growing near powerlines. They are renowned for shedding fronds that fall or blow across powerlines, and they usually cannot be pruned without destroying the plant.

5.3 Service Lines

Service lines are the cables that connect the powerline to the property. In urban areas, this will generally be a single span of insulated cable from the roadside pole to an attachment on a building (point of supply). In rural areas, the attachment of the service cable is likely to be to a pole erected approximately 20 metres inside the property boundary.

Service lines are generally insulated; however, continual rubbing by vegetation can damage the cable. Contact with vegetation during storms may bring the service line down. Damage and subsequent repairs to service lines is a substantial and avoidable cost to ENERGEX.

A fallen service line usually affects only one property. So in severe storms a damaged service line is generally made safe and fixed later after repairs to network faults that may have caused loss of supply to large areas. To minimise personal inconvenience and maximise safety, all residents and landowners should ensure that vegetation is planted and maintained clear of the service line.

5.4 Maintaining Vegetation near Powerlines

Landowners and residents sometimes carry out maintenance on vegetation beyond the clearance zone normally maintained by ENERGEX. Before tackling any such tasks, individuals must be without any doubt that there is no risk of any person, machinery or equipment touching powerlines, or foliage falling onto lines. Before removal of any vegetation landowners and residents are advised to check with appropriate organisations to determine if approval is required.

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The Workplace Health and Safety Regulations and ENEREX's Safe Working Principles set limits of approach to powerlines for the general public including any vegetation that they are handling. This requirement applies in these circumstances.

If residents or landowners considering pruning of vegetation have even the slightest safety concerns, they should consult a suitably trained and accredited contractor.

5.5 ENEREX Right to Enter Property

The Electricity Act 1994, Chapter 6 - *Electricity Officers' Powers* outlines the rights of Electricity Officers to enter property. Vegetation maintenance works are covered by this right. It states in Section 136:

136.(1) An electricity officer for an electricity entity may, at any reasonable time, enter a place where the electricity entity has works or an electrical installation to inspect, operate, change, maintain, remove, repair or replace the works or installation.

6. POWERLINE CLEARANCE STANDARDS

Under Section 137 of the Electrical Safety Regulation 2002, an electricity entity must ensure that an overhead electric line, forming part of the works, does not come into contact with or within arcing distance of an earthed exposed conductive part.

The dimensions of safe clearance zones maintained for bare wire systems in urban areas and for Aerial Bundled Cable (ABC) in all areas (figures 2 and 3) have been determined by an ENEREX engineering study and risk analysis.

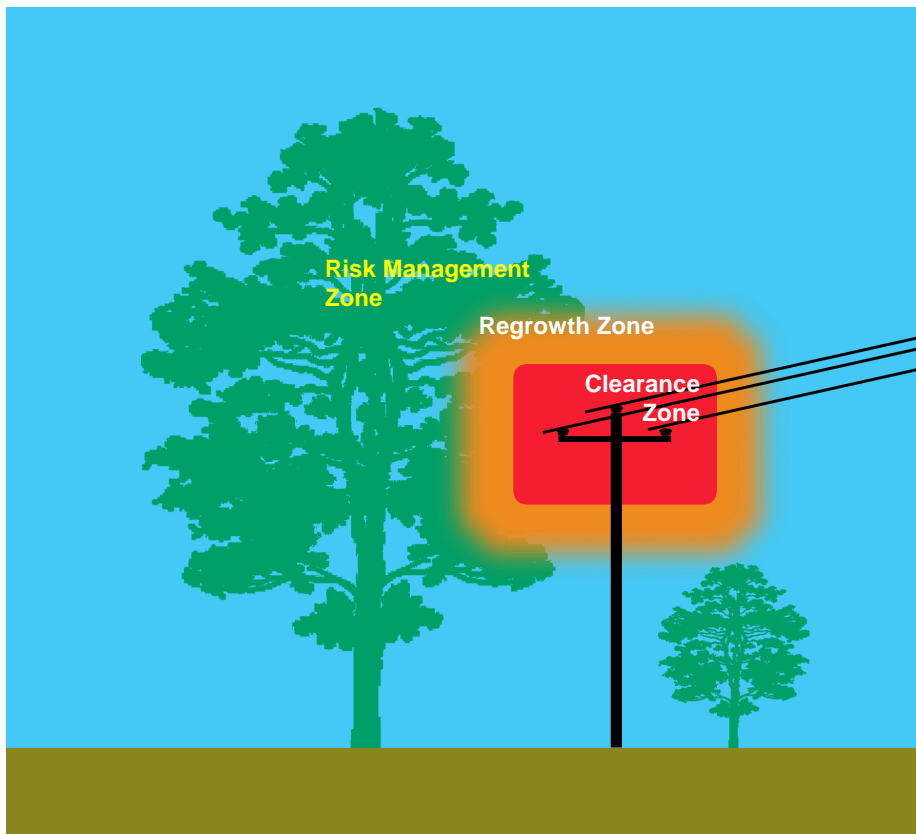
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Table 1 Urban Areas - Bare Wire Conductor Systems

Type of Powerline	Clearance Zone			Low Growth Zone
	Vertical above conductor	Horizontal outside conductor	Vertical below conductor	Max vertical above ground
Bare low voltage	2.0 m	1.0 m (urban) 2.0 m (rural)	1.0 m	4.0 m
Bare 11 kV, 33 kV	3.0 m	2.0 m (urban) 3.0 m (rural)	2.0 m	

Figure 1 – Clearance Profile for Bare Wire Conductor Systems



- Clearance Zone is the space surrounding a powerline that must be clear of vegetation at all times, including the period between trimming cycles.
- Regrowth Zone is a space beyond the clearance zone that must be maintained (trimmed) so that the regrowth does not enter the clearance zone within the trimming cycle
- Risk Management Zone is a space outside the clearance and regrowth space in which unsound trees or limbs may pose a risk in adverse weather conditions due to factors such as instability and weakness due to disease, fractures and rot.
- Low Growth Zone is the space below the clearance zone where vegetation is allowed which will not have a height of more than a specified distance, depending on the circumstance.
- The presence of limbs and foliage growing over the powerline is strongly discouraged. In some instances healthy and stable limbs may remain, provided the tree is not easily climbable and the powerline voltage is less than 33,000 volts. For sub-transmission powerlines, this is not normally permitted.

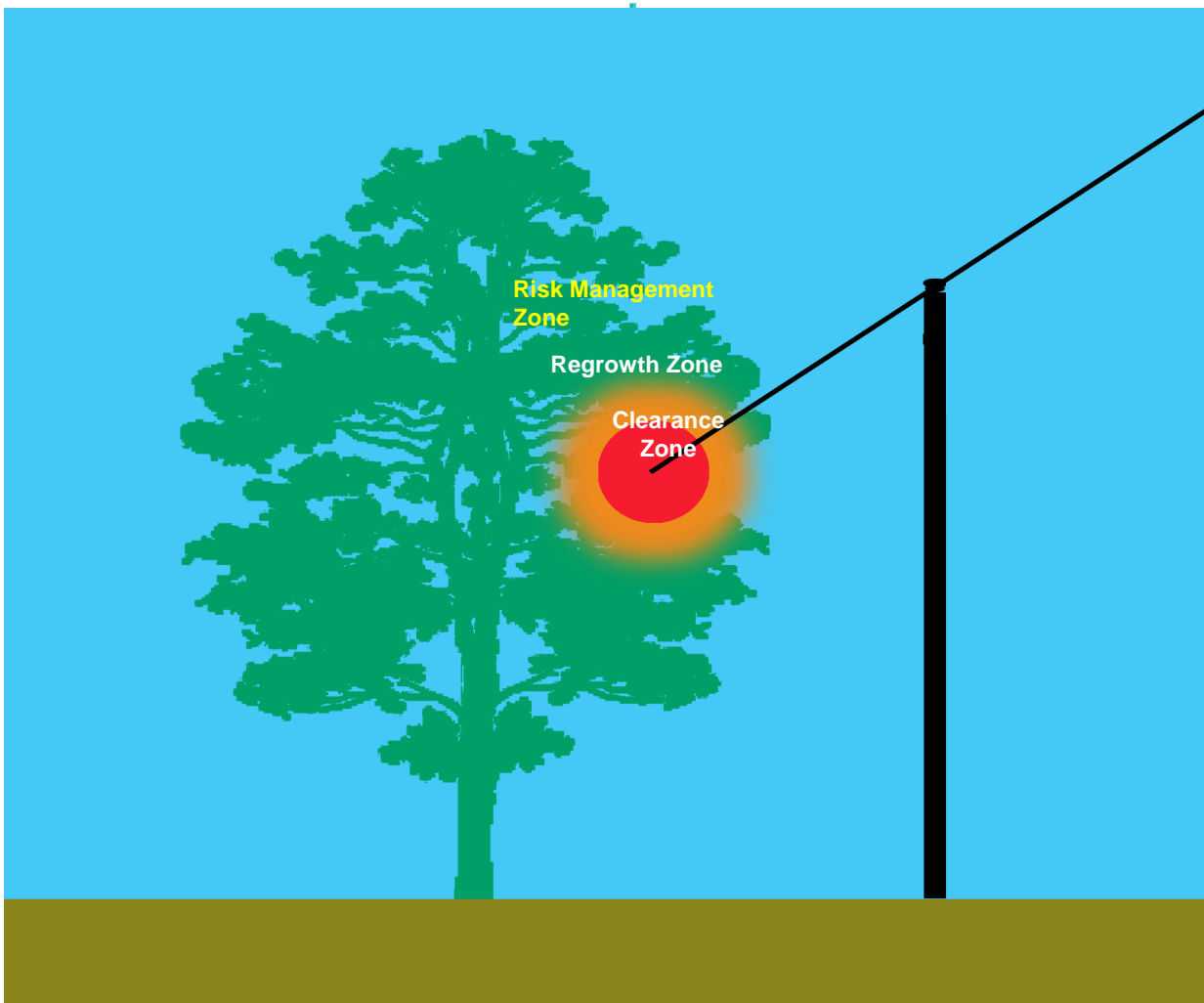
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Table 2 Urban and Rural Areas – Low Voltage Aerial Bundled Cable and Insulated Service Cable.

Type of Powerline	Clearance Zone			Low Growth Zone
	Vertical above conductor	Horizontal outside conductor	Vertical below conductor	Max vertical above ground
Aerial bundled cable	0.5 m	0.5 m (urban) 1.0 m (rural)	1.0 m	4.0 m
Insulated service cable	0.5 m	0.5 m	0.5 m	

Figure 2 – Clearance Profile – Low Voltage ABC and Insulated Service Cable

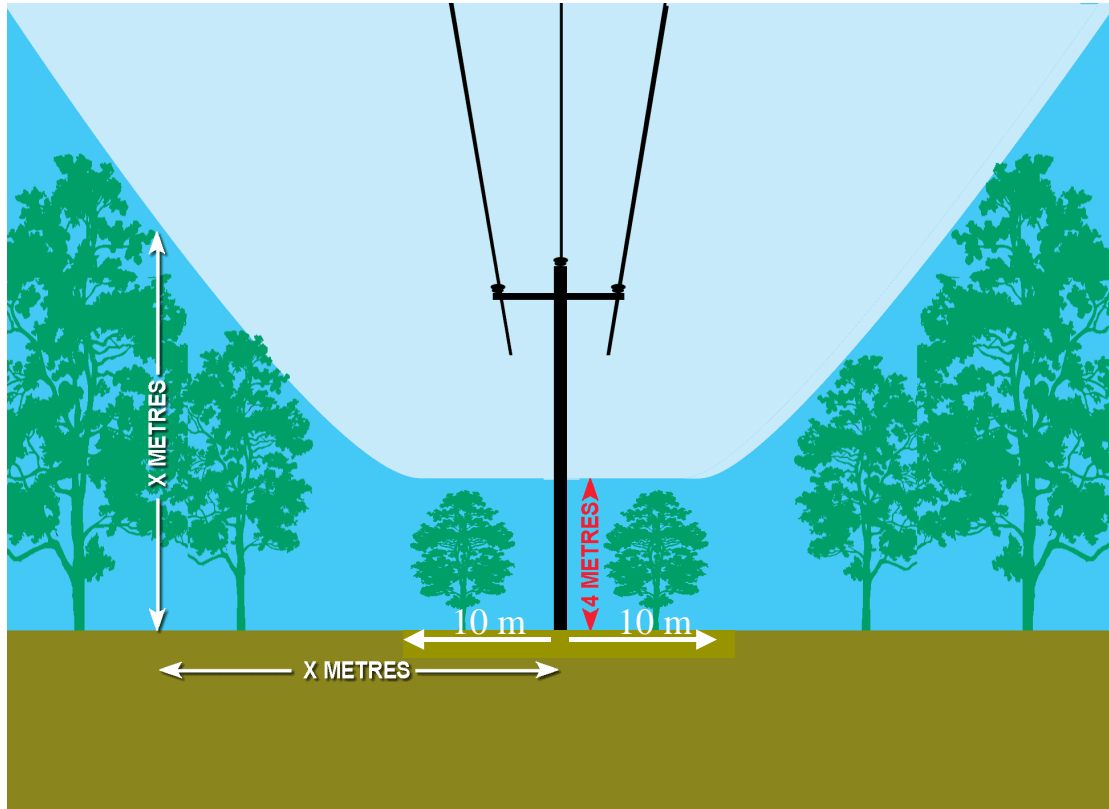


- The clearance zone for aerial bundled cable and service cables near the pole, as specified in column 2, may be reduced where tree trunks and limbs present no risk of abrasion. Foliage that will not abrade the ABC will be permitted in the clearance zone.

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Figure 3. Rural and Sub Transmission - Bare Wire Conductor Systems
Corridor Profile



- Vegetation that cannot fall into the powerline can remain.
- Vegetation with a mature height less than four metres may remain under the powerline, however a working area around the pole or structure must remain clear to allow access for maintenance and repair.
- A corridor of low growing vegetation may be retained to allow connectivity of wildlife habitat.
- Safe access must be provided for maintenance vehicles.
- In fire prone areas, density of vegetation will be managed to prevent accumulation of fuel.

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7. WORLD HERITAGE AND OTHER AREAS OF ENVIRONMENTAL AND CULTURAL IMPORTANCE

Queensland has many unique natural and cultural environments that are recognised throughout the world, and protected by legislation and regulation.

This Code formulated for general application will not take precedence over Legislation and Regulation.

ENERGEX is conscious of our environmental responsibilities in the provision of products and services to our customers and the community. We have been instrumental in the development and introduction of Codes of Practice that in part, deal with vegetation management, specifically in sensitive environmental areas.

Similarly, Department of Primary Industries has issued a code "Fish Habitat Code of Practice" for use with Strategic Permits issued under Section 51 of the Fisheries Act 1994. FHC 004, Maintenance of Powerlines and Associated Infrastructure. This code developed with ENERGEX's involvement, deals in part with vegetation management in Queensland's sensitive fish breeding and hatchery areas.

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8. APPENDIX A – GLOSSARY OF TERMS

To assist people to understand pruning or clearing practices and to provide a consistent and measurable approach to the management of vegetation near powerlines the following basic terms, concepts and principles have been adopted:

‘aerial bundled cable’	Insulated cable manufactured to Australian Standard AS 3560 or AS 3599 Part 1 or AS 3599 Part 2 used in substitution for multiple bare conductors.
‘clearance zone’	The space surrounding a powerline that must be clear of vegetation at all times.
‘easement’	An easement or corridor for transmitting, distributing or supplying electricity, whether registered or unregistered.
‘electric line’	A wire, conductor or associated equipment used for transmitting, transforming or supplying electricity.
‘risk management zone’	The space outside the clearance and regrowth zone in which unstable trees or limbs pose a risk. These may be due to factors such as disease, fractures, dead wood and erosion or failure risk in adverse weather conditions.
‘insulated service cable’	A low voltage, multi-core cable insulated by a medium other than an air space as defined in Australian Standard AS 3000-1991 - SAA Wiring Rules and used for the purpose of conveying electricity through a service line.
‘low voltage’	Voltage not exceeding 1000 Volts
‘occupier’	In relation to land, means a person who is in actual occupation of the land or if no one is in actual occupation of the land, the owner of the land.
‘point of supply’ (consumer’s terminals)	The point where a customer’s electrical installation is connected to a service line.
‘powerline’	An electric line, which ordinarily operates at a voltage of 132,000 volts or less and includes sub-transmission lines.
‘public land’	Land vested in any Minister of the Crown or land vested in any public statutory authority or council or land (whether privately or publicly owned) used for public purposes.
‘regrowth zone’	The space beyond the clearance zone that must be cleared to allow for anticipated vegetation regrowth in the period between pruning and or clearing.
‘rural area’	An area that is not an urban area.
‘service line’	An electric line, including a connection to the service fuse, servicing a customer’s premises from the point of supply on ENERGEX’s works to the consumer’s terminals.
‘sub-transmission line’	A powerline that operates at a nominal voltage of greater than 33 kV and not more than 132 kV
‘urban area’	An area of land which is predominantly: (a) subdivided into residential allotments or lots which in the case of land used; or to be used for residential purposes are not greater than 0.4 hectares and; (b) able to be used or developed under a planning scheme for residential, industrial or commercial purposes; and (c) provided with constructed streets and public utility services; and (d) located adjacent to roadways with a speed limit of less than or equal to 60 km/hr.
‘vegetation management cycle’	The frequency of successive pruning or clearing which ENERGEX judges optimal for maintaining clearance between powerlines and vegetation. It is based on practical factors including the strategic importance of the reliability of the line to the electricity network, the local climate, regrowth rate, the size of the clearance and regrowth zone, recurrent costs, and conservation considerations.