



# Vegetation Management Strategy

If this strategy is a printed version, to ensure compliance, reference must be made to the Energy Queensland Controlled Documents to obtain the latest version.

**Abstract:** Energy Queensland's prime vegetation management objective is to meet legislative requirements and enhance the condition of the current vegetation clearances to its electrical network, whilst further reducing the vegetation management program's expenditure needs into the future.

**Keywords:** Vegetation, Management Program, Environment

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## 1 Overview

### 1.1 Purpose

- (a) Energy Queensland's prime vegetation management objective is to meet legislative requirements and enhance the condition of the current vegetation clearances to its electrical network, whilst further reducing the vegetation management program's expenditure needs into the future. Energy Queensland's vegetation management strategy focuses on optimising:
- i. The vegetation treatment cycle periods;
  - ii. Vegetation treatment methodologies; and
  - iii. Program management.
- (b) Energy Queensland will undertake all practical measures to achieve its corporate responsibility to the public and key stakeholders, by managing vegetation clearances to the electrical network through use of the most economical preventative maintenance techniques available. Energy Queensland will demonstrate this through:
- i. Active engagement with the Customers and the wider community.
  - ii. Vegetation management practices that are sustainable and comparable with industry best practice.
- (c) Energy Queensland will continue to actively seek out technological advances that complement its vegetation management strategy and deliver improvements in managing risk and expenditure for managing vegetation in the vicinity of electrical network. Such activities include, and are not limited to:
- i. Aerial asset surveillance technology services and the associated imagery data and assessment systems; and
  - ii. Integration of Service Provider based vegetation identification systems and management tools (e.g. Vegetation Management IP data results) into Energy Queensland's resource planning systems.
- (d) This Energy Queensland vegetation management strategy outlines:
- i. The practices Energy Queensland will employ to manage vegetation:
    - To ensure that public safety is maintained.
    - That can affect the safety, operation and reliability of the electrical network.
    - To minimize program expenditure in a sustainable manner.
  - ii. Energy Queensland's obligations to its Customers and the wider community:
    - For the provision of a safe, secure and reliable electricity network.
    - To minimise the expenditure to manage vegetation within the vicinity of electrical network.
    - To minimise vegetation related interruptions to Customer's electricity supply.
    - To minimise the risk of fire ignition from vegetation touching electrical network.

### 1.2 Scope

- (a) This Energy Queensland vegetation management strategy provides a statement of Energy Queensland's:
- i. Obligations and commitment to the Customers and the wider community.
  - ii. An outline of the vegetation management practices.
- (b) The vegetation management strategy does not fully detail all:
- i. Plans.
  - ii. Processes.

- iii. Other activities and initiatives that support the achievement of the strategy's objectives.
- (c) This Energy Queensland vegetation management strategy applies to any Energy Queensland electricity network that operate at 132,000 Volts (132 kV) or less.

## 2 References

### 2.1 Energy Queensland controlled documents

WCS1.6 Vegetation Management Plan (Work Category Specification)

WCS1.7 Vegetation Control Near Electricity Networks (Work Category Specification)

WCS1.8 Vegetation Clearing by Mechanical Plant Near Electricity Networks (Work Category Specification)

Operational Standard OS119 Vegetation Worker Clearances

## 3 Legislation, regulations, rules, and codes

This document refers to the following:

- Aboriginal Cultural Heritage Act 2003.
- Agricultural Chemicals Distribution Control Act 1966.
- Agricultural Chemicals Distribution Control Regulation 1998.
- Chemical Usage (Agricultural and Veterinary) Act 1988 and the advisory standard "Storage and use of Chemicals in Rural Workplaces".
- Biosecurity Act 2014.
- Coastal Protection and Management Act 1995.
- Coastal Protection and Management Regulation 2003.
- Cultural Heritage Act 1992.
- Electrical Safety Act 2002.
- Electrical Safety Regulation 2013.
- Electricity Act 1994.
- Electricity Regulation 2006.
- Environmental Offsets Act 2014.
- Environmental Protection Act 1994.
- Environmental Protection Regulation 2008.
- Environment Protection and Biodiversity Conservation Act 1999.
- Fisheries Act 1994.
- Fisheries Regulation 2008.
- Forestry Act 1959.
- Integrated Planning Act 1997.
- Land Protection (Pest and Stock Route Management) Act 2002.

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- Marine Parks Act 2004.
- Marine Parks Regulation 2006.
- Nature Conservation Act 1992.
- Nature Conservation (Wildlife) Regulation 2006.
- Nature Conservation (Wildlife Management) Regulation 2006.
- Nature Conservation (Administration) Regulation 2006.
- Pest Management Act 2001.
- Plant Protection Act 1989.
- Plant Protection Regulation 2002.
- Queensland Heritage Act 1992.
- Sustainable Planning Act 2009.
- Torres Strait Islander Cultural Heritage Act 2003.
- Vegetation Management Act 1999.
- Water Act 2000.
- Work Health and Safety Act 2011.
- Work Health and Safety Regulation 2011.
- Code of Practice for Maintenance of Electricity Corridors in Queensland's Parks and Forests – July 2008.
- Electrical safety code of practice 2010 – Working near overhead and underground electric lines.
- Fish Habitat Code of Practice
- Queensland Codes of Practice.
- Manual of Uniform Traffic Control Devices (MUTCD), Part 3 - Works on Roads.
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).
- Australian Standard AS/NZS 3675:2002 - Conductors - Covered overhead - For working voltages 6.35/11(12) kV up to and including 19/33(36) kV.
- Australian Standard AS 4373-2007 – Pruning of amenity trees.
- Australian Standard AS 4970-2009 – Protection of trees on development sites.
- Other relevant Australian Standards.
- Department of Agriculture and Fisheries - Fire Ant Movement Controls for Commercial Operators (Biosecurity QLD website).
- Code for self-assessable development - MP04 June 2012: Maintenance works on powerlines and associated infrastructure in a declared fish habitat area or involving the removal, destruction or damage of marine plants.
- Code for self-assessable development - MPO6 January 2013: Minor impact works in a declared Fish Habitat Area or involving the removal, destruction or damage of marine plants.
- Fish Habitat Management Operational Policy FHMOP 001 - Management and protection of marine plants and other tidal fish habitats.

- Fish Habitat Management Operational Policy FHMOP 002 - Management of declared Fish Habitat Areas: departmental policy position.
- Queensland Environmental Offsets Policy (Version 1.1).
- Fish Habitat Management Operational Policy FHMOP 010 - Tidal fish habitats, erosion control and beach replenishment.
- Marine Fish Habitat Offset Policy.
- ENA Doc 023-2009 ENA Guidelines for Safe Vegetation Management Work Near Live Overhead Lines.

## 4 Definitions, acronyms, and abbreviations

### 4.1 Definitions

For the purposes of this strategy, the following definitions apply.

<b>Aerial Bundled Cable</b>	Insulated cable manufactured to Australian Standard AS3560 or AS3599 Part 1 or Part 2.
<b>Authorised Person</b>	For an electric line, means a person who: <ul style="list-style-type: none"><li>(a) Has enough technical knowledge and experience to do work that involves contact with, or being near to, the electric line; and,</li><li>(b) Has been approved by the person in control of the electric line to do work that involves contact with, or being near to, the electric line, or is authorised to act for the person in control of the electric line.</li></ul>
<b>Bioregion</b>	Relatively large land areas characterised by broad, landscape-scale, natural features and environmental processes that influence the functions of entire ecosystems. (Note: Queensland is divided into 13 bioregions.)
<b>Clear</b>	To cut and remove part of or the whole of a tree or plant.
<b>Clearance Zone</b>	The space surrounding electrical network where as far as practicable every effort is made to ensure the space is kept clear of vegetation.
<b>Corridor</b>	Cleared strip on any land within a rural area for an electrical network line route which may or may not contain overhanging vegetation.
<b>Competent Person</b>	A person who has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to correctly perform the required task.
<b>Blow Out Distance</b>	Distance required in clearance zone due to sway and is dependent on the span length.
<b>Easement</b>	A designated segment of land utilised for the establishment of electrical network (transmission, sub-transmission or distribution) that is registered.

<b>Electricity Officer</b>	Means a person who is appointed under the Electricity Act 1994 as an electricity officer.
<b>Electrical Network</b>	Any span of electrical conductors between supporting infrastructure and associated electrical plant and equipment.
<b>HACCP Certification</b>	Means an independent, conformance certification designed to meet precise demands, giving assurance to the consumer and producer alike, as to the fitness for purpose of products that generally need to be: <ul style="list-style-type: none"><li>(a) Well designed with 'food-safe' characteristics.</li><li>(b) Non-toxic (or appropriate levels of toxicity).</li><li>(c) Easy to clean (or appropriate for use).</li><li>(d) Likely to reduce the risk of any form of contamination.</li><li>(e) Designed for a low consequence of error in use.</li></ul>
<b>High Voltage (HV)</b>	Voltages greater than 1000 volts AC RMS phase to phase
<b>Insulated Service Cable</b>	A Low Voltage, multi-core cable insulated by a medium other than an air space as defined in AS/NZS 3000:2007: Electrical installations and used for the purpose of conveying electricity to a LV customer's point of supply from the respective electrical network LV fused connection point.
<b>Low Growth Zone</b>	The space below the Clearance Zone where vegetation is managed in accordance with WCS1.6. (i.e. low growth species allowed only)
<b>Low Voltage (LV)</b>	Voltages greater than extra low voltage (e.g. voltages of 50 volts or less AC RMS or 120 volts or less ripple-free DC) and not more than 1000 volts AC RMS or 1500 volts ripple-free DC.
<b>Occupier</b>	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.
<b>Point of Supply (Consumer's Terminals)</b>	The point where a Customer's electrical installation is connected to a service line.
<b>Public Land</b>	Crown land; land vested in any Minister of the Crown; land vested in any public statutory authority or council; or land (whether privately or publicly owned) used for public purposes.
<b>Regrowth Zone</b>	The zone beyond the ' <b>clearance zone</b> ' that is cleared to allow for anticipated vegetation regrowth in the period between consecutive pruning and / or clearing cycles.
<b>Risk Management Zone</b>	The zone outside the clearance and regrowth zones in which unstable trees or limbs pose a risk. These may be due to factors, for example disease, fractures, dead wood and erosion or failure risk in severe weather conditions.
<b>Rural Area</b>	An area that is not an urban area. (Means areas where property road frontages are > 40 metres per property.)

<b>Sag</b>	The vertical displacement of the conductor below the point at which the conductor is attached to the supporting structure and includes any extra displacement caused by hot weather or high load current.
<b>Service Line</b>	An electric line, including a connection to the service fuse, serving a Customer's premises from the point of supply on Energy Queensland's works to the Customer's terminals.
<b>Service Providers</b>	Contractor engaged to action the required vegetation services.
<b>Sub-Transmission Line</b>	Generally an electricity network that operates at a nominal voltage of 33 kV (substation to substation), 66 kV, 110 kV and 132 kV.
<b>Sway</b>	The horizontal displacement of the conductor caused by wind.
<b>Urban Area</b>	Defined as areas where more than five adjacent properties have a road frontage of < 40 metres per property. (Note: Urban and rural areas and the associated profile may be varied when the vegetation zone is issued.)
<b>Vegetation</b>	Any plant growth (including vines, climbers and twigs), living or dead.
<b>Vegetation Management Cycle</b>	The frequency between successive vegetation treatments.
<b>Vegetation Treatment</b>	Specified methodologies for vegetation control that may include, pruning to AS 4373-2007, clearing with mechanical plant and chemical control (e.g. application of herbicide) or a combination there of.
<b>Vegetation Zone</b>	A geographical area which includes a defined section of Energy Queensland's overhead network asset(s), for example a component section(s) of an electricity supply feeder(s) in rural areas or urban areas.

## 4.2 Acronyms and abbreviations

Nil.

## 5 Introduction

- (a) Management of vegetation in the vicinity of electricity networks will be by:
- Tree pruning to AS 4373-2007;
  - Tree removals;
  - The controlled application of herbicide; and
  - Slowing vegetation growth by the application of tree growth regulating product(s)
  - where proven economically viable and appropriate to utilise.
- (b) Reduction of expenditure will be through vegetation treatment cycle optimisation, employment of the most suitable treatment methodologies and targeted removal of

unsuitable trees. The basis for selecting applicable contract style(s) in urban areas will be economic effectiveness and the ability to minimise long-term expenditure.

- (c) The clearance zone in rural areas is suited to management that uses economically effective aerial surveillance techniques, with scheduling and supervision that incorporates aerial asset surveillance technology services and the associated image data and analysis.
- (d) Further development of contract styles used for all vegetation management will allow for a much lower commercial risk to Energy Queensland and for improvement in competitive bidding among potential Service Providers during the tender process.
- (e) Utilising aerial surveillance techniques will assist in compiling condition monitoring data across sequential years and individual vegetation zones. Analysis of this data will feed modelling for forecasting future:
  - i. Vegetation growth;
  - ii. Risk exposure(s); and
  - iii. Expenditure optimisation.

This will allow Energy Queensland to model combinations of various scenarios for vegetation cycle duration and vegetation treatment methodology for establishing the potential expenditure needed to provide the most prudent and efficient vegetation management strategy.

- (f) Trees, shrubs and other vegetation enhance our lifestyles. Vegetation provides shade and privacy around our homes, offer habitats for birds and wildlife, and adds aesthetic value to our community. Equally, vegetation interfering with the electrical network can be a risk to public safety, the environment and one of the main causes of power supply problems, therefore unsuitable vegetation within the electrical network clearance zone is not an ideal combination for public safety and electrical supply reliability.
- (g) Energy Queensland maintains one of the largest electrical sub-transmission and distribution network systems world-wide, with coverage over all of Queensland which is over one million square kilometres in area. This electrical network includes approximately 185,000 kilometres of overhead network and associated infrastructure (steel towers, steel poles, timber poles and spans of overhead conductors).
- (h) The nature of differences between urban and rural landscapes, means vegetation is managed differently to meet the objectives of the vegetation management strategy.
- (i) This vegetation management strategy supports the principles of the Energy Queensland's environmental policy.
- (j) Energy Queensland recognises that there are sites of significant vegetation near overhead network infrastructure requiring special consideration and treatment because of their importance to the community and the environment. This may include some vegetation that is of cultural significance to Indigenous People. These areas of individual trees need to be identified and preserved with the assistance of the relevant Indigenous Communities.
- (k) Energy Queensland also recognises that there are many stakeholder groups which influence the way in which vegetation management activities can be carried out. It is Energy Queensland's intention, under this strategy, to engage with all stakeholders in the process of meeting its obligations as a prudent and efficient electricity distribution network entity and good corporate citizen.

## 6 Safety

- (a) Energy Queensland's Health and safety policy, details the guidelines for Energy Queensland's safety requirements and objectives.
- (b) Trees and vegetation present a significant threat to safety in the vicinity of electrical network. Under this strategy the following are addressed and every effort will be made to ensure they are minimised and where practical eliminated:
  - i. Falling branches or trees bringing down energised overhead electrical network.

- ii. Ignition of bushfires resulting from contact with energised electrical network.
- iii. Persons climbing trees near overhead electrical network.
- iv. Electric shocks from persons contacting vegetation touching energised overhead electrical network.
- v. Damage to Energy Queensland property and injury to Energy Queensland representatives.

## 7 Legal Obligations

- (a) The legal responsibilities applying to the safe management of vegetation are contained within the:
  - i. Electricity Act 1994.
  - ii. Electricity Regulation 2006.
  - iii. Electrical Safety Act 2002.
  - iv. Electrical Safety Regulation 2013.
- (b) The safety of workers and operators engaged on vegetation management work is covered by the:
  - i. Workplace Health and Safety Act 2011.
  - ii. Workplace Health and Safety Regulation 2011.

## 8 Energy Queensland Responsibilities

- (a) Current relevant legislation and how it applies to Energy Queensland and the entity's obligations to manage the vegetation that can impact the integrity and reliability of the entity's electricity network and the safety of the Customers and the wider community.
- (b) Energy Queensland has an obligation under the Electrical Safety Act 2002 (as amended), to ensure that its works are electrically safe and are operated and maintained in a way that is electrically safe.
- (c) Energy Queensland has an obligation under section 216 of the Electrical Safety Regulation 2013, to ensure that trees and vegetation are trimmed and other measures taken, to prevent contact with an overhead electric line and exposed parts forming part of its works that is likely to cause injury from electric shock to any person or damage to property.
- (d) Energy Queensland discharges its obligations to ensure that under the Electrical Safety Legislation, that both Energy Queensland and its Service Providers follow the provisions of Chapter 6 of the Electrical Safety Code of Practice 2010 – Working near overhead and underground electric lines as the minimum safety standard for managing vegetation near overhead electric line and exposed parts.

## 9 Clearing To Make Safe

- (a) Energy Queensland is required to remove vegetation that poses an immediate risk to public safety and the security of entity's electricity network.
- (b) In such circumstances, Section 141 of the Electricity Act 1994 allows an Electricity Officer from Energy Queensland at any reasonable time, to enter a place (or property) where the electricity entity has works or an electrical installation to make the works or installation safe.
- (c) This includes the clearing of vegetation around overhead electric line and exposed parts without notification to the Landowner or Occupier of a place if Energy Queensland deems it necessary for safety reasons.

- (d) Energy Queensland will generally notify the Landowner or Occupier as soon as possible after removal of the vegetation.

## 10 Land Owners / Occupiers Safety Responsibilities

- (a) Landowners or Occupiers are to exercise due care in assessing the safety clearances and the conducting of vegetation treatment. The relevant clearances and practices in this strategy should be used for guidance and only persons / operators who are appropriately trained and accredited are to undertake vegetation pruning works.
- (b) In some places the land traversed by electricity network is covered by an easement that has conditions attached limiting:
- i. The growing of certain trees and crops.
  - ii. The construction of structures or fences.
  - iii. The placement of fill that may reduce the safe clearances between all components of electrical network and the ground level.
- (c) If trees are planted or grow which have the potential to impact the electrical network they may be removed by Energy Queensland under Section 140 of the Electricity Act 1994 (as amended). Energy Queensland will issue instructions for the removal of other items that impact the easement or reduce the safe clearances to the electrical network.
- (d) Before commencing any work in the vicinity of the electrical network, Landowners or Occupiers should consult the Energy Queensland Customer Contact Centre to determine the requirements to ensure safety and network reliability.
- (e) There are other situations where electric lines emanate from a building on the property and carry the electricity supply to remote pumps or other buildings or equipment and this is more prevalent in rural areas. These lines are generally the property and responsibility of the Landowner.
- (f) If Landowners or Occupiers are unsure of the ownership of electric lines, they should contact the Network's Customer Operations Centre on the phone numbers listed below.

Regional Queensland Area	Telephone Number
Northern Region Central Region Southern Region	13 74 66
Metropolitan North Region Metropolitan West Region Metropolitan South Region	13 12 53

**Note:** Refer to Appendix B for the geographical areas included in the Energy Queensland Regions.

## 11 Customer Charter

### 11.1 General

- (a) Energy Queensland has established processes and guidelines to ensure that Landowners or Occupiers affected by vegetation clearing and treatment activities are notified of planned vegetation works and where applicable, advised with regard to how the works will be conducted.

- (b) Having experience and knowledge of electricity networks, Energy Queensland will assist and provide general advice to Customers, community groups and the public on management, planting and maintenance of vegetation close to electrical network.

## 11.2 Access to Carry Out Work

- (a) Energy Queensland and its agents (Service Providers) have statutory rights of access to private and public land as provided for by the Electricity Act 1994.
- (b) Relevant sections of that Act (as amended) are:

### **98 Electricity entity entitled to access to its works**

- 1) *This section applies to an electricity entity's works on someone else's land, including land that is a publicly controlled place, railway land or a protected area.*
- 2) *The electricity entity (and its employees and agents) are entitled to have unrestricted access to the works at any reasonable time and, for that purpose, may enter and pass through the land.*

### **101 Electricity entity may take action in publicly controlled places to provide electricity etc.**

- 1) *An electricity entity may take the action in a publicly controlled place it considers necessary to provide or supply electricity, including, for example:*
- a) *Opening and breaking up the soil and pavement of the place; and*
  - b) *Cutting, lopping, or removing trees and other vegetation growing in or over the place; and*
  - c) *Opening or breaking up a sewer, drain or tunnel in or under the place; and*
  - d) *Temporarily stopping or diverting traffic on or from the place; and*
  - e) *Building drains, excavations, subways and tunnels in or under the place.*

### **140 Entry to place to protect electricity entity's works**

- 1) *An electricity officer for an electricity entity may, at any reasonable time, enter a place to prevent an obstruction or potential obstruction to, or interference or potential interference with, the building, maintenance or operation of an electric line or other works of the entity.*
- 1A) *Without limiting subsection (1), the electricity officer may enter the place to remove vegetation that is interfering, or has the potential to interfere, with the operation of an electric line or other works of the entity.*
- 2) *However, the electricity officer may enter the place only if:*
- a) *The occupier of the place consents to the entry; or*
  - b) *The electricity officer or the electricity entity gives the occupier at least 7 days' notice of the intended entry.*
- 3) *The notice must state a period of not more than 1 month when entry will be made.*
- 4) *The notice is sufficient notice for each entry made during the stated period.*

## **Part 2 Powers to prevent fire or electrical shock**

### **141 Entry to make works or electrical installations safe**

- 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 make the works or installation safe.*
- 2) *An electricity officer may, at any reasonable time, enter a place where someone else has an electrical installation to which electricity is supplied by the electricity entity to make the installation safe.*

- 2A) Without limiting subsection (1) or (2), the electricity officer may enter the place to remove vegetation that is affecting, or may affect, the safety of works or an electrical installation mentioned in the subsection.
- 3) The electricity officer may disconnect supply to a works or installation until it is made safe.
- 4) The powers conferred by this section are in addition to the powers conferred by part 1.
- 5) In this section—safe, in relation to works or an electrical installation, means that the works or electrical installation cannot cause fire or electrical shock.

## 11.3 Notification and Consultation

- (a) During the normal vegetation maintenance program Energy Queensland and its agents [Electricity Officer (s)] undertakes to notify:
- i. Persons occupying or managing private lands;
  - ii. Local Government Authorities; or
  - iii. Other relevant bodies (including special interest groups) responsible for the management of public lands;
- affected by programmed vegetation treatment either by written notice or meeting with the effected parties.
- (b) In the case of proposed vegetation treatment on vacant land, notices may be published in local newspapers advising of the works.
- (c) Energy Queensland will also endeavour to notify / consult with Occupiers and managers of private and / or public land:
- i. For arrangements of access to electricity network easements / corridors.
  - ii. For arrangements for the approval and introduction of chemical treatment of vegetation on their land.
  - iii. In urban areas for the arrangement of removal and disposal of vegetation on their land which has potential to impact the electrical network.
  - iv. In rural areas, where the removal of the vegetation may affect the use of the land.

## 11.4 Assistance to the Public

- (a) Energy Queensland makes every effort to ensure that any vegetation treatment conducted near electrical network by the public can be done so safely, by assessing and advising of safe working distances for pruning or clearing vegetation activities and recommending safe methods for removing vegetation near electricity networks.
- (b) This may require Energy Queensland to isolate electricity supply to the electrical network, perform preliminary pruning to enable safe access, or take other precautions to ensure the safety of those working near the electrical network.
- (c) Energy Queensland can provide the public with:
- i. Help in obtaining advice on vegetation species, their growth habit and information on suitability for planting relative to works near electrical network.
  - ii. Advice on clearing and pruning alternatives for vegetation, for example electrical network relocation, conversion to an insulated conductor system or conversion from the current electrical network configuration to an alternative (e.g. overhead to underground, overhead to renewable supply, change of connection points etc.), and the associated expenditure with that.

## 11.5 Complaints Resolution

- (a) Disputes may arise from decisions made by Energy Queensland in carrying out its responsibilities to maintain safe clearances between electrical network and vegetation.
- (b) For South East Queensland (**Metropolitan North, Metropolitan West and Metropolitan South Regions**) Energy Queensland will endeavour to resolve any dispute with those affected in line with the current Energex [Complaints and Dispute Resolution Procedure](#).
- (c) For Regional Queensland (Northern, Central and Southern **Regions**) Energy Queensland will endeavour to resolve any dispute with those affected in line with the current Ergon Energy [Complaints and Dispute Resolution Procedure](#).
- (d) These Energy Queensland complaints and dispute resolution procedures explains how Energy Queensland will manage complaints and disputes. This procedure includes:
  - i. What information Energy Queensland require from Customers / community groups.
  - ii. When Customers / community groups can expect to hear from Energy Queensland.
  - iii. What options Customers / community groups have if it is felt complaints or disputes have not been handled effectively.

## 12 Environmental Management

### 12.1 Environmental Planning for Work

- (a) Queensland has many unique natural and cultural environments that are recognised throughout the world, and protected by Commonwealth of Australia and Queensland legislation and regulation.
- (b) This Strategy will not take precedence over the relevant Commonwealth of Australia and Queensland Legislation and Regulation.
- (c) Energy Queensland is conscious of its environmental responsibilities in the provision of vegetation management services to the entity's Customers and the wider community. Energy Queensland has been instrumental in the development and introduction of Codes of Practice that in part, deal with vegetation management in the vicinity of overhead electrical network, specifically in sensitive environmental areas.
- (d) Energy Queensland has incorporated a number of processes and practices within the business to prevent or minimise the environmental harm to the environment under the framework of an environmental management system that complies with ISO14001.
- (e) The Queensland Electricity Supply Industry has produced a Code of Practice for "*Code of Practise for Maintenance of Electricity Corridors in Queensland's Parks and Forests – July 2008*". This document addresses the vegetation management requirements of key legislation relating to the maintenance of environmental and cultural matters in the electricity corridors through Queensland's Parks and Forests.
- (f) Maintenance activities associated with the vegetation management program are required to comply with, and are not limited to:
  - i. Environmental and cultural legislation detailed in Section 3.
  - ii. Energy Queensland environmental processes for South East Queensland (**Metropolitan North, Metropolitan West and Metropolitan South Regions**) detailed in Section 2.1.
  - iii. Energy Queensland environmental processes for Regional Queensland (Northern, Central and Southern **Regions**) detailed in Section 2.1.

## 12.2 Cultural Heritage

- (a) Non-indigenous heritage consists of buildings, works, relics, trees or places of historical, scientific, cultural, social, archaeological, natural or aesthetic significance. This can include historical electrical infrastructure, particularly buildings.
- (b) The Queensland Legislation that governs non-indigenous cultural heritage are:
  - i. The Queensland Heritage Act 1992.
  - ii. The Sustainable Planning Act 2009.
- (c) The assessment and management of risk in regards to indigenous cultural heritage are performed in accordance with the requirements of the Aboriginal Cultural Heritage Act 2003.
- (d) Notification of traditional owners and native title claimants is required if vegetation management works are to take place in areas of known Aboriginal and Torres Strait Islander cultural heritage. These laws make it illegal to harm, excavate, relocate, take away or be in possession of indigenous or Torres Strait Islander cultural heritage. If Energy Queensland staff or their Agent find items that could be cultural heritage they should stop what they are doing, notify their Energy Queensland Supervisor who'll manage the situation by securing the site and contacting the relevant Cultural Heritage Officer.

## 12.3 Bushfire Risk Management

The Energy Queensland bushfire risk management policy has been developed to minimise the risk of fire ignition from the electrical assets of Energy Queensland. The objective of this strategy is to perform vegetation treatment, with the potential to interfere with the overhead electricity networks and likely fire ignition to:

- (a) Reduce the risk of personal injury arising from fire ignition from vegetation / electrical assets.
- (b) Reduce the risk of damage to third party and network assets arising from fire ignition from vegetation /electrical assets.
- (c) Maintain compliance with relevant legislation.

## 12.4 Measures to Reduce Bushfire Risk

- (a) The risks posed by bushfire vary in time and intensity across Queensland and the management of the risks to Energy Queensland assets will depend on prevailing weather conditions and ground fuel levels.
- (b) An assessment of risk will be made when weather conditions trigger a higher level of bushfire readiness in each region across Energy Queensland when required.
- (c) Annually when required, Energy Queensland releases a bushfire risk management plan as part of bushfire risk reduction process.

# 13 Electricity Network Infrastructure And Vegetation Clearance

## 13.1 Introduction

- (a) Energy Queensland's electricity network comprises of the following construction types:
  - i. Bare conductor (wire) systems;
  - ii. Insulated overhead systems;
  - iii. Covered conductor line systems;
  - iv. Underground cables; and

- v. Substations and other standalone electrical plant
- (b) The dimensions of the necessary 'clearance zone' around items (i) to (iii) inclusive above vary, and are dependent on a number of factors, as outlined in the Appendix A - Electricity Network to Vegetation Clearance Zones
- (c) Energy Queensland's electricity network also contains substation and underground assets and intermediate electrical infrastructure sites, which also need consideration to vegetation clearances (e.g. encroachment of outside vegetation and associated root systems)

## 13.2 Planning New or Refurbishing Electrical Network

- (a) When planning construction of new overhead electricity networks, Energy Queensland makes every effort to ensure that:
  - i. The selection of a system is the optimal economic alternative and meets town planning requirements.
  - ii. Where practical the route of the overhead electricity networks avoids unnecessary and recurrent clearing and pruning of remnant vegetation.
  - iii. Where practicable, vegetation species suitable for growing near the overhead electricity networks are not removed.
  - iv. Avoid and / or minimise harm to individual trees or vegetation communities with cultural heritage significance to indigenous parties.
- (b) In selecting the route of the overhead electrical network, Energy Queensland attempts to establish the most economical, technically acceptable option, taking into account the ongoing expenditure of vegetation management, the objectives of our environmental policy, and maintenance of the distribution network. Appropriate approvals are sought from relevant Authorities responsible for the management of any land the overhead Electrical Network route may pass through.
- (c) In most new residential areas, it is generally a local government authority 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.
- (d) Clearly underground cables overcome most of the ongoing vegetation issues associated with overhead bare conductor (wire) lines. The cost to retrofit existing high voltage and low voltage overhead electrical networks to underground is not funded under the current Australian Energy Regulated financial forecasts and determinations.
- (e) Energy Queensland will consider a customer funded request .to underground an existing overhead electricity network.
- (f) In cyclone-prone urban areas Energy Queensland may progressively replace some of the high voltage overhead electricity network with underground electricity network to help improve safety and system reliability. This work will be completed on a priority basis over a period of time that will not impact on other essential works.
- (g) Energy Queensland attempts to adhere by the principles as set out in AS 4970, when assessing the likely impact of excavating on vegetation in the immediate vicinity of the proposed underground cable route. Due to the restriction of where underground alignments are able to be placed in road reserves, the conflict between the tree root system and the underground trench excavation will often require for trees and vegetation to be removed.

## 14 Managing Vegetation Near Overhead Electrical Network

### 14.1 General

- (a) Energy Queensland's electricity network consists of a high voltage sub-transmission system, supports high and low voltage distribution systems that deliver electricity to Customers.
- (b) Energy Queensland aims to manage the risks associated with vegetation in the vicinity of overhead Electrical Network, with the following objectives:
  - i. Ensure public safety.
  - ii. Comply with legislative requirements including, and not limited to, electricity, electrical safety, cultural heritage and environmental protection.
  - iii. Mitigate the number of interruptions and disturbances to supply caused by vegetation.
  - iv. Commercial management of vegetation activities.
  - v. Minimise the risk of fire ignition caused by contact between vegetation and overhead electrical network.
  - vi. Protect Energy Queensland network assets from damage.
  - vii. Minimise the effect of the management of vegetation around overhead electrical network on the natural environment.
  - viii. Comply with the Energy Queensland environmental policy.
- (c) To achieve these objectives the program is based on management practices that minimises the need for recurrent vegetation treatment utilising a combination of manual, mechanical and chemical treatment methods determined on a best-for-location and environment impact basis.

### 14.2 Approach

Many factors have an influence on the vegetation management option selected for any particular location and species of vegetation. Qualified arboriculture personnel will carry out vegetation management works in accordance with this strategy to ensure that appropriate management options are identified planned and carried out to AS4373-2007 standards.

### 14.3 Vegetation Treatment Cycles

- (a) The frequency of vegetation treatment cycles is based on practical factors including, and not limited to:
  - i. Type of vegetation species.
  - ii. Location of.
  - iii. Stakeholder and conservation considerations.
  - iv. Regrowth rates.
  - v. Fire risk.
  - vi. Prevailing climate.
  - vii. Recurrent expenditures.
- (b) Urban areas are managed on vegetation treatment cycles generally ranging from 12 months to 24 months.
- (c) Rural areas are managed on vegetation treatment cycles generally ranging from 12 months to 72 months.

## 14.4 Pruning Practices

- (a) Trees are to be pruned to acceptable arboriculture standards in accordance with Australian Standard AS4373 “Pruning of Amenity Trees”. Where these methods prove inappropriate, for example, species that require pruning more frequently than is practical or acceptable. Considered alternatives to pruning as detailed in clause 6.10.5 - Alternatives to Vegetation Treatment.
- (b) Trimming of trees around overhead electrical network involves several types of reduction pruning, back to a growth point, a branch fork or lateral, in harmony with natural target pruning.
- (c) The following benefits exist for this type of pruning:
  - i. Maintaining the structural integrity of the tree as far as possible.
  - ii. Prevention of epicormic regrowth (rapid and weakly attached growth) into the clearance zone around overhead electrical network.
  - iii. Direction of growth away from the overhead electrical network.
  - iv. Extension of the vegetation pruning and tree trimming cycle.
- (d) The Energy Queensland clearance distances from the overhead electrical network are outlined in the Appendix A - Electricity Network to Vegetation Clearance Zones.
- (e) In addition to these specified clearance distances, allowance is to be made for extra clearance distance for, and not limited to:
  - i. The type of vegetation species.
  - ii. Regrowth rates during nominated cycle period.
  - iii. The prevailing climate.
  - iv. Movement of the vegetation and tree(s) in wind and water loading.
  - v. The sway of the conductor (blowout).
  - vi. The sag of the electricity network on a hot and/or heavily loaded day.
  - vii. The heating of the electricity network from the electric current it carries.
- (f) The branches to be trimmed will generally be taken back to branch collars therefore combined with regrowth consideration during the cycle period, the vegetation will generally be cleared further from the overhead electrical network than the distances specified in the Appendix A - Electricity Network to Vegetation Clearance Zones.

## 14.5 Alternatives to Vegetation Treatment

- (a) There are a number of methods of maintaining the clearance zone between overhead electricity networks and exposed electrical parts and the vegetation; the most common method used is the pruning of the vegetation.
- (b) Alternative methods will be considered if:
  - i. Safety issues exist
  - ii. They are economically feasible; or
  - iii. Where the vegetation concerned is of significance; or
  - iv. Where the vegetation concerned is of heritage value or listing; or
  - v. Where vegetation cannot be successfully pruned.
- (c) Likewise prior to removing a tree other options may be considered.
- (d) Owners of trees are encouraged to consider alternatives to pruning or removal.
- (e) Energy Queensland may also benefit by considering alternatives to pruning or removal to decrease maintenance expenditure and maintain reliability of the electricity supply network.

## 14.6 Vegetation Removal

- (a) Removal of vegetation and trees:
- i. Trees are to be removed when necessary to protect the safety of the public and the reliability of the electricity supply network in relation to the overhead electric network or respective infrastructure,
  - ii. The Landowner or the Occupier will be notified prior to removals being undertaken.
  - iii. If Energy Queensland deems a removal is necessary and approval cannot be obtained from the Landowner or Occupier, as provided for under section 140 of the Electricity Act 1994, removal may be scheduled and carried out after the required formal notification time period has expired.
- (b) In some cases, the pruning of vegetation method may not address the problem and the vegetation may need to be removed. This can occur for the following reasons:
- i. The vegetation might suffer die-back if regularly trimmed.
  - ii. The vegetation is suffering from extensive rot or disease.
  - iii. The vegetation is a palm.
  - iv. Bamboo that has the potential for the canes to drop onto or clash with the overhead electrical network.
  - v. The vegetation cannot be pruned in accordance with relevant Australian Standards.
  - vi. After pruning occurs, the pruning will remove more than 2/3rds of the original potential mature canopy of the tree.
  - vii. The vegetation species, size and growth rate is such that the vegetation cannot be effectively pruned to prevent vegetation re-entering the clearance zone between rectification intervals (vegetation treatment cycles).

## 14.7 Urban Areas

- (a) The vegetation to be treated includes the vegetation in the 'clearance zone', 'regrowth zone' and risk management zone. Removal of vegetation from the 'regrowth zone' and risk management zone enables the establishment of a sustainable vegetation treatment cycle.
- (b) In urban areas the vegetation management cycle generally ranges from 12 to 24 months.
- (c) In situations where vegetation pruning cannot be conducted without impacting on the vegetation's character, amenity and utility value, or encouraging vigorous regrowth, removal is likely to 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 is removed or made safe.
- (d) In circumstances where a risk assessment has been performed by a qualified Arborist and vegetation has been deemed to be of minimal risk to the electricity supply network and public; there may be allowance for vegetation to remain within the 'clearance zone'.
- (e) Energy Queensland does not necessarily remove all debris when repairing the electricity network damaged by a fallen tree.

## 14.8 Rural Areas

- (a) The extent and number of the overhead electricity network in rural areas requires that a different vegetation management approach is used to that in urban areas. Response times to incidents of vegetation affecting the continuity of electricity supply to Customers can be significantly greater than the time taken in urban areas.
- (b) Vegetation management cycle times in rural areas are typically longer than urban areas and the method to manage the coexistence of vegetation and overhead electrical network in rural areas varies from region to region based upon a number of factors.

- (c) In rural areas the vegetation management cycle generally ranges from 12 to 72 months.
- (d) To achieve effective vegetation management in rural areas, species whose mature height could have the potential to interfere with the operation of the overhead electricity networks are generally treated at an early growth stage to minimise future vegetation management expenditure and disruption of electricity supply to the area. Where practical, low growing vegetation species that poses no threat to the reliability of the electricity supply and safety of the electricity network are usually not treated, except to provide ongoing access for maintenance.
- (e) Mature trees may be left within the easement where they are risked assessed as not posing a hazard to the overhead electricity network or do not impede ongoing access for maintenance.
- (f) For voltages of 33 kV and below, overhang may be allowed where a visual assessment determines that the vegetation is unlikely to fail or will have minimal impact on the overhead electricity network.
- (g) The vegetation clearing profiles vary for different voltages, and a general guide has been outlined in Appendix A - Electricity Network to Vegetation Clearance Zone. There are additional factors that our experienced Energy Queensland staff or their Agents take into account when determining the most suitable clearances to apply.
- (h) In rural areas, the debris may be left behind with Landowner or Occupier agreement, after the pruning process, to breakdown naturally over time where this will not adversely affect the use of the land. Chemical treatment of vegetation may also result in an amount of debris which is left on site and also expected to break down over time.
- (i) When conducting vegetation treatment, the fallen debris will not impede established access tracks.

## 14.8.1 Agricultural Areas

- (a) Parts of the rural areas within Queensland are used for agricultural production. Certain crops that are grown under the overhead electricity supply network have the potential to:
  - i. Either grow into the clearance zone: or
  - ii. Grow in such a manner that in the process of managing these crops, farm workers can potentially compromise approach limits.
- (b) Crops fall into two categories:
  - i. Annuals (e.g. Bananas, Sugar Cane (not limited to))

Annual crops are not likely to be managed appropriately with cyclic trimming due to their fast growing nature. Where in any given span, the height of the crop and the clearance to ground overlap, all attempts should be made to create a corridor to prevent (a) i and (a) ii above.
  - ii. Perennials (e.g. Mangoes, Avocados, Macadamias, Pecan, Citrus (not limited to))

Perennial Crops, if farmed appropriately by the farm worker/owner may be managed in areas under the overhead electricity supply network if the nature of the growth does not compromise (a) i and (a) ii above.
- (c) A holistic approach to creating corridors in all Agricultural Areas is applied in consideration of the economic impact on the livelihood of farmers. Consideration is also applied to precedence of network /crop, in many cases the overhead electricity supply network was built before the land was used for the type of crop causing conflict.
- (d) Energy Queensland continues to improve on solutions for vegetation management within Agricultural Areas and this development is reflected in documents:
  - i. C3 Conductor Clearance Defect Management Strategy; and
  - ii. The Primary Production Hazard Assessment Criteria.

## 14.9 Control of Saplings and Regrowth

- (a) It is essential that saplings and regrowth of tall growing species are controlled to maintain the security and viability of the overhead electricity supply network.
- (b) Vegetation should be retained in the following situations wherever practical:
  - i. Low growing species, which will not impact on the 'clearance zone'. The requirements to retain access for maintenance or repairs may take precedence.
  - ii. Low growing species for the habitat for threatened species.
  - iii. In steep gullies, (particularly where the connectivity of wildlife habitat and erosion prevention are of major importance) where the overhead electricity network will be well above the maximum height of the prevailing mature vegetation and the 'clearance zone' will not be compromised.
- (c) Methods generally used for the reduction of saplings and regrowth are:
  - i. Slashing / mulching.
  - ii. Hand cutting.
  - iii. Herbicide treatment.

## 14.10 Hand Cutting

- (a) Where vegetation is cut by hand, the application of a herbicide is usually required to prevent regrowth which would generally be faster growing and less stable vegetation.
- (b) The use of herbicides in this process is covered in clause 6.10.12 - Herbicides.
- (c) Stump grinding is also an acceptable method of preventing regrowth.

## 14.11 Slashing / Mulching

- (a) Slashing / mulching are used in areas of Energy Queensland's overhead electricity network that are dominated by medium to high-density saplings. In such areas slashing / mulching is more practical and economic effective than hand cutting the vegetation.
- (b) In general, grassed areas will not be controlled using slashing / mulching except on sub-transmission easements for :
  - i. Clear access
  - ii. Fire suppression to prevent arcing from smoke and ash.

## 14.12 Herbicides

- (a) Herbicide application will result in reductions of sapling density and provide a long-term solution to tall growing vegetation conflicting with overhead electricity network.
- (b) An important consideration is that the herbicide application program be environmentally safe and supervised by a licensed operator. Personnel applying herbicides are to be qualified in compliance with legislative requirements, a competent person, and follow the herbicide manufacturer's recommendations for application. This being the product label and Safety Data Sheet (SDS)].
- (c) Landowners, including organic growers, who advise that herbicides are not to be used on their property, are encouraged to control any vegetation before it effects the risk management / regrowth zone affecting the overhead electricity network themselves, while at all times maintaining safe approach distances to the overhead electricity network. Landholders are encouraged to look at alternative solutions as listed in clauses 6.10.5 - Alternatives to Vegetation Treatment, to control any vegetation affecting the overhead electricity network. This does not delegate Energy Queensland's responsibility to maintain the 'clearance zone' around overhead electricity networks to a Landholder(s).

- (d) The following distribution methods for herbicides may be utilised to control the growth of vegetation:
  - i. Cut stump treatment.
  - ii. Selective low-volume basal treatment.
  - iii. Foliar application
  - iv. Stem injection
  - v. Distribution of pelletised herbicide
- (e) Specific requirements and controls for herbicide use in some areas include:
  - i. Near creeks, dams, sensitive crops and other sensitive areas.
  - ii. In paddocks containing livestock.
  - iii. Cattlecare, HACCP certification and other quality controlled properties.

## 14.13 Sub-Transmission Lines in Regional Queensland

- (a) Energy Queensland's objective for sub-transmission overhead electricity networks is to create a corridor clear of any vegetation that may grow into or fall onto sub-transmission overhead electricity network, with no vegetation overhanging this type of overhead electricity network.

## 14.14 Significant Vegetation

- (a) This is vegetation identified in liaison with or provided by relevant and recognised Authorities or bodies, as requiring special attention and vegetation treatment to preserve its condition. This includes, and is not limited to:
  - i. Botanically, historically or culturally significant vegetation.
  - ii. Vegetation of outstanding aesthetic or ecological significance.
  - iii. The habitat of rare or endangered species.
  - iv. Endangered, and of concern regional ecosystems, as mapped by the Queensland Herbarium.
- (b) Energy Queensland works with State and Local Government and other recognised interest groups, to establish a management plan for identified significant vegetation.

# 15 Vegetation Planting Guidelines

## 15.1 General

- (a) Members of the community can assist in achieving a safer and more reliable electricity supply network, by taking care when planting and maintaining vegetation near electricity networks and service lines.
- (b) Cooperation by Landowners for the removal of inappropriate vegetation can also greatly assist in the reduction of maintenance expenditure and increased reliability in the electricity supply network.
- (c) Energy Queensland aims to raise the wider community's awareness of these issues and to assist the public in obtaining specialist advice on planting suitable species of trees and vegetation in the vicinity of overhead electricity networks and service lines.

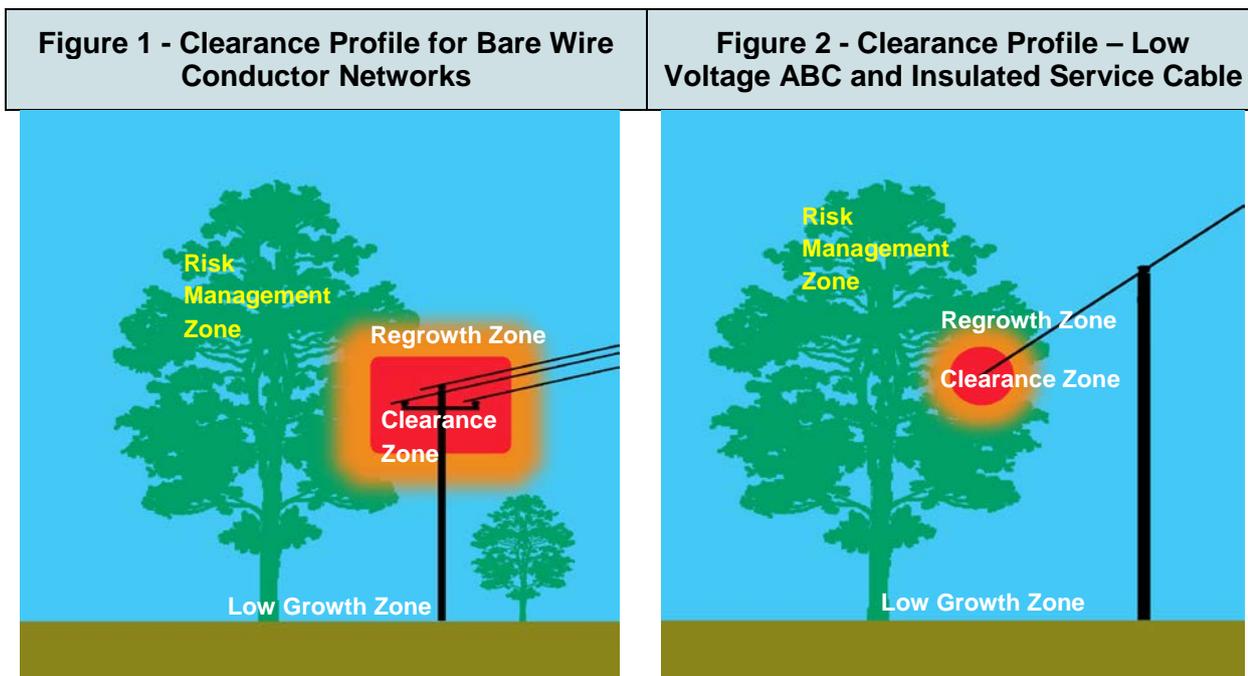
## 15.2 Planting of Vegetation

- (a) The first consideration, when anyone is selecting plants to grow in the vicinity of the electricity network and service lines is, how tall will this plant grow.
- (b) Plants should **not** be planted where they will grow into the 'clearance zone' surrounding overhead electricity network and service lines. Generally species with a mature height greater than four metres (4 m) should not be planted under overhead electricity network and service lines. Furthermore species which produce a spreading horizontal canopy should not be planted where the foliage will grow into the 'clearance zone' surrounding an overhead electricity network and service lines.
- (c) Similarly, mature root systems and foliage spread of tree species should also be considered in relation to underground electricity networks and electricity network ground infrastructure.
- (d) As a rule, taller trees should be planted at least the height of the mature tree away from surrounding overhead electricity network and service lines.
- (e) Where people are not aware of potential tree heights, and safety around surrounding overhead electricity network and service lines they should seek advice. Most plant nurseries and local government councils have staff that can provide this advice.
- (f) Palms are a common sight across Queensland and their rapid growth; height and shedding of fronds make them unsuitable for growing near a surrounding overhead electricity network and service lines. They are renowned for shedding fronds that fall or blow across a surrounding overhead electricity network and service lines, and they usually cannot be pruned to maintain clearance for the nominated vegetation treatment cycle times without destroying the plant and therefore the need to be removed if they are in an unsuitable location(s).
- (g) Inappropriate vegetation that has been planted near an overhead electricity network and service lines and that may impact on the 'clearance zone' surrounding the relevant overhead electricity network and service lines in the future may be targeted for removal as soon as possible. Check with your local council for your local planting guidelines, as councils are responsible for planting on the footpath.
- (h) Consider the location of the overhead electricity network and service lines and underground mains electricity cables and underground service cables, including the electricity service lines to your home. Note: Call "Dial Before You Dig" on Phone 1100 to request information on underground electricity cables on, or in the vicinity of your property.

## Annex A

### Electricity Network to Vegetation Clearance Zones

- (a) The below specified distances to be maintained between overhead electricity networks and the surrounding vegetation (refer to Figure 1, Figure 2, and Table 1).
- (b) When put into practice, clearances will be further than those listed as an additional amount is to be allowed for regrowth between vegetation treatment cycles for trimming as well as the cutting to the Australian Standard for Amenity Trees (AS4373-2007). These additional distances are not defined as they are species and location specific and vary considerably between regions across Queensland.



The presence of limbs and foliage from vegetation growing over the overhead electricity network is strongly discouraged. In some instances healthy and stable limbs may remain, provided the tree is not easily climbable and the overhead electricity network voltage is less than 33,000 volts. For sub-transmission overhead electricity networks, this is not permitted.

Additionally, in rural areas where an enlarged clearing width has been previously established, this cleared width will be maintained.

Refer to Table 1 for clearance zone distances.

The clearance zone for aerial bundled cable and service cables near the pole, as specified in column 2 of Table 1, may be reduced where tree trunks and limbs present no risk of abrasion. Foliage that will not abrade the service cable will be permitted in the clearance zone.

Refer to Table 1 for clearance zone distances.

**Table 1 - Minimum Zone Clearances for Distribution Electricity Networks**

Construction	Conductor Type	Minimum Zone Clearances (m) <sup>1 &amp; 2</sup>			
		Clearance Zone			
		Vertical Above Conductor	Horizontal Outside Conductor		Vertical Below Conductor
Urban	Rural <sup>3&amp;4</sup>				
<b>Standard Profiles</b>					
33kV and 11kV	Bare	3.0	2.0	3.0	2.0
11kV	CCT <sup>5</sup>	3.0	2.0	3.0	2.0
11kV	ABC	1.0	0.7	1.0	0.7
LV Mains	Bare	2.0	1.0	2.0	1.0
	ABC	0.5	0.5	1.0	0.5
LV Services <sup>6</sup>	Bare and open covered	1.0	1.0		1.0
	Insulated	0.5	0.5		0.5
Pilot Cables	Insulated	0.5	0.5		0.5
<b>High Performance Profiles<sup>7</sup> / 33kV Sub Transmission</b>					
33kV and 11kV	Bare	<i>Clear to Sky</i>	3.0 <sup>8</sup>		2.0
11kV	ABC	1.0	1.0		0.7

**Note 1:** Refer to WCS1.6 for more detailed requirements and clarification of the diagrams and tables.

<sup>1</sup> All clearances are minimums unless otherwise stated.

<sup>2</sup> The clearance horizontally from around poles is 3 m.

<sup>3</sup> Where the previous clearance corridor is clearly distinguishable, maintain the original clearing width through the use of appropriate methods, e.g. ground cutting, Herbicide application, "slashers", "mega mulchers", "groomers" and the like.

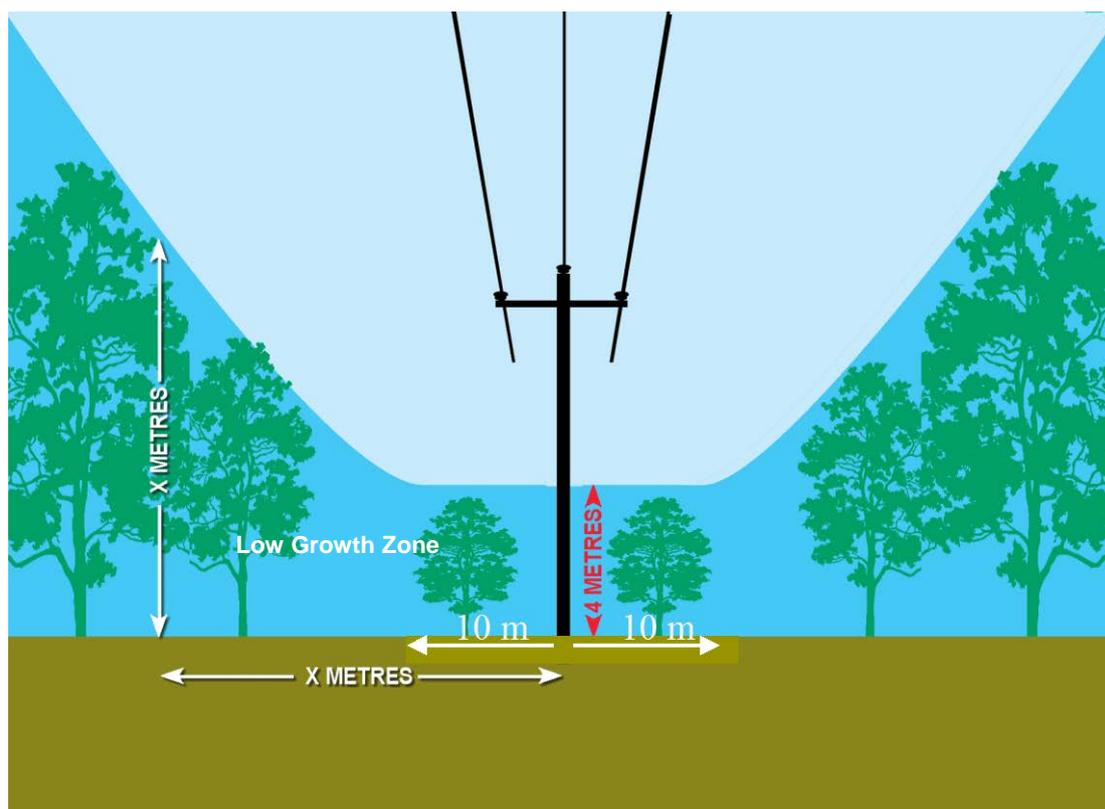
<sup>4</sup> Minimum horizontal clearance outside conductor by definition is as for urban, and additional trimming as indicated is undertaken to maintain additional space for regrowth between cycles in rural areas only.

<sup>5</sup> CCT or Covered Conductor Thick has the same clearances as bare open wire construction.

<sup>6</sup> Clear all open wire and concentric overhead service lines and insulated service lines; if mechanical damage to LV service / insulation is likely.

<sup>7</sup> Requires a completed and signed Form 1155 to proceed.

<sup>8</sup> Where achievable (may be constrained in urban areas). Minimum horizontal clearance outside conductor by definition is as per standard profiles.



**Figure 3 - Corridor Profile - Electricity Networks - Bare Wire Conductor (Non Easement)**

Additional requirements for vegetation management in rural areas and sub transmission electricity network corridors are listed below:

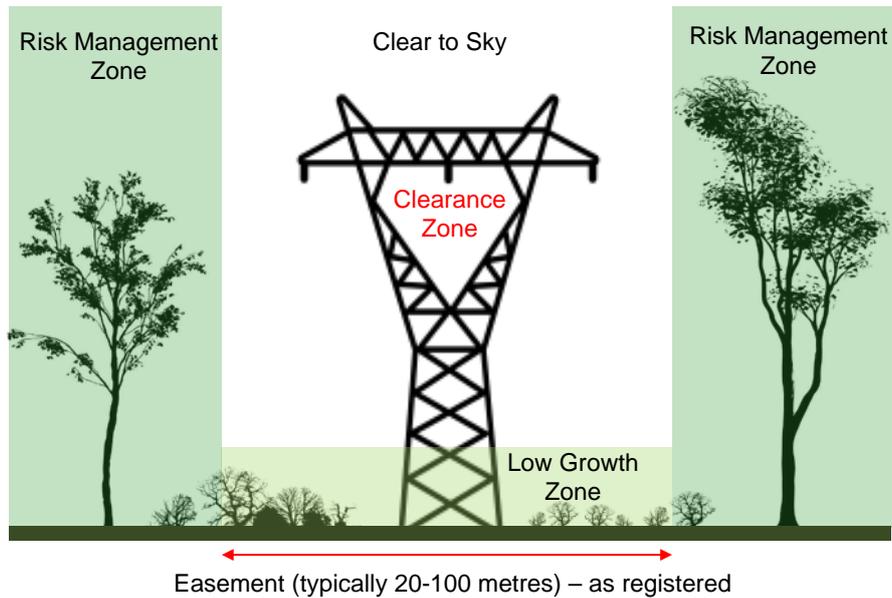
- (a) Vegetation that cannot fall into the electricity network can remain.
- (b) Vegetation with a mature height less than four metres (4 m) may remain under the electricity networks, and a working area around the pole or structure is to be maintained and remain clear of vegetation to allow access for infrastructure maintenance and repair.
- (c) A corridor of low growing vegetation may be retained to allow connectivity of wildlife habitat.
- (d) Safe access for maintenance vehicles to reach working area(s) is to be maintained and remain clear.
- (e) In fire prone areas, density of vegetation will be managed to prevent accumulation of fuel.

**Table 2 – Corridor Dimensions – Rural (Non Easement)**

Conductor - Rural Area Corridor	Distance from Centre Line (m)
Bare Wire LV	4
	For the South East Queensland Regions this dimension is the nominated clearance zone. (Refer Table 1 above.)
SWER	4
11kV ABC	2
11kV CCT	4.5
11kV, 22kV, 33kV	4.5

- Note 1:** Where sub-transmission powerline (conductors) are constructed on property not governed by an easement, the clearance zones will be dependent on the span of the conductors (line) to allow for conductor swing out in high winds. In rural areas, the above listed minimum corridor widths apply either side of the centre line.
- Note2:** The dimensions for the clearance zones provided in the above table are specified for each vegetation zone (VZ) where a previously established rural corridor exists.
- Note 3:** Corridors are to be applied in rural areas only; urban areas do not have an applicable corridor size.
- Note 4:** Vegetation which has the potential to enter the rural corridor is to be treated, except where concessions are made.

Figure 4 – Easement Profile – Vegetation Clearance at Transmission and Sub Transmission Electricity Networks - Bare Wire Conductor



- Note 1:** Refer to WCS1.6 for more detailed requirements and clarification of the diagrams and tables.
- Note 2:** Energy Queensland will nominate the easement width.
- Note 3:** Figure 4 above is illustrative only, showing a steel lattice tower structure that may be a mono pole (steel, concrete, wood) structure for some of the voltages detailed in Table 3.

**Table 3 – Easement Dimensions – Minimum Zone Clearances for Sub Transmission and Transmission Lines**

Position	Span Length	Minimum Zone Clearances <sup>9</sup> (m)							
		Clearance Zone <sup>10</sup>					Low Growth Zone		Risk Management Zone
		Distance from Centreline	Vertical above Conductor	Horizontal outside Conductor	Horizontal outside Conductor	Vertical below Conductor <sup>11</sup>	Max. Vertical from Ground <sup>12</sup>	Zone Width <sup>13</sup>	Horizontal outside Conductor <sup>14</sup>
33kV Sub Transmission only	Any length	6	Clear to Sky	-	-	-	4.0	Equals Clearance Zone width	-
66kV	Any length	15		-	-	-			-
<b>110kV and Higher Voltages</b>									
At Structures on Easements	< 200	1	Clear to Sky	10.0	-	-	4.0	Equals Clearance Zone width	15.0
	200 – 350			10.0	-	-			17.0
	350 – 450			10.0	-	-			20.0
At Mid Span on Easements	< 200			-	10.0	5.0			15.0
	200 – 350			-	10.0	5.0			17.0
	350 – 450			-	13.0	5.0			20.0
At Structures not on Easements	< 200			7.0	-	-			15.0
	200 – 350			7.0	-	-			17.0
	350 – 450			7.0	-	-			20.0
At Mid Span not on Easements	< 200			-	10.0	5.0			15.0
	200 – 350			-	10.0	5.0			17.0
	350 – 450			-	13.0	5.0			20.0

<sup>9</sup> All clearances are minimums unless otherwise stated.

<sup>10</sup> Where easements are narrow, e.g. 20 m, horizontal clearance outside conductor may extend beyond easement edge.

<sup>11</sup> This dimension may be reduced only in exceptional circumstances and only with the approval of the Energy Queensland or its Agent in relation to possible CID commitments.

<sup>12</sup> This dimension may with approval from the Energy Queensland or its Agent be increased where it can be clearly demonstrated that vegetation will at full mature height not enter the clearance zone.

<sup>13</sup> All tall growing species to be managed on the easement and the vegetation actioned to the full easement width (zone width).

<sup>14</sup> Trees identified with defects within the risk management zone are to be removed or the tree canopy reduced.

## Annex B

### Energy Queensland Vegetation Management Regions Annex title

