Tree Strategy 2016

Port Pirie
Regional Council

The Port Pirie Parks Strategy has been prepared by Xyst Australia Pty Limited for the Port Pirie Regional Council (the Council).

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1.0 Introduction

The Tree Strategy is necessary for Council to establish why and where attention will be given to tree management and to set priorities for tree management in the region. There has not previously been an overall Council vision for tree provision, protection and maintenance and little clear direction for future planting programs.

The need for a Tree Strategy was identified as part of the Parks Operations Review completed earlier in 2014.

The Strategy is designed to cover a period of 10 years with a review after 5 years to assess progress towards the vision and goals.

Trees make an important contribution to the look and feel of the region's character and identity and the wellbeing of its residents. The planted landscape encompasses a mosaic of public and private tree specimens. This green landscape is a valuable asset requiring active management to ensure long-term, effective enhancement of the amenity to continue to provide ecological and environmental benefits to the community.

Trees make an important contribution to the health and wellbeing of Port Pirie's residents and to the quality of the Region's landscape by providing:

- Oxygen – virtually all that we breathe in the natural atmosphere comes from the growth of plants
- Improved air quality through filtering of carbon dioxide, sulphur dioxide, ozone, nitrogen oxide, methane, hydrogen fluoride, fluorocarbons and other particulates such as dust
- Improved water quality by reducing topsoil erosion, acting as natural pollution filters
- Energy savings for households and businesses by creating natural shade in summer, species that admit sunshine in winter, moderating local environments by lowering air temperatures and reducing heat island effects
- Extended life of paved surfaces by keeping the surface temperatures cooler and helping to absorb excess soil water
- Increased traffic safety through traffic calming and speed control, buffer zones between pedestrians and moving vehicles, forewarning of different surroundings and identifying upcoming features
- Improved economic sustainability by enhancing shopping areas and providing friendlier work environments
- Added value to property
- Shade and shelter from wind and rain
- A softening effect to harsh outlines of buildings and complementing building development
- Screening unsightly and unwanted views
- Habitats and migratory corridors for wildlife
- Attractive colours, flowers, beautiful shapes, forms and textures
- Privacy and a sense of solitude
- Reduced noise pollution
- Minimise exposure to lead in soil.

1.1 The vision

Port Pirie wishes to be a region that has pride in, and appreciates the values of its trees within public parks, streets and open spaces. It wishes to provide streets that are attractive and town centres which are visually appealing and inviting, to complement the network of parks and open spaces ranging from urban to naturally maintained assets.

1.1.1 The vision for Port Pirie

The City of Port Pirie will provide an attractive urban environment enhanced by trees that provide seasonal colour, form, shade and assist with traffic calming. The trees will be valued by the resident community and be well maintained by Council. Trees will be of an appropriate scale and species to enable them to be enjoyed by the majority of the community.

1.1.2 The vision for the townships

The townships of Crystal Brook, Redhill, Napperby and Koolunga will have trees that are appropriate in scale, provide seasonal colour and recognise historical planting themes, where appropriate.

The trees will be valued by the resident community and be well maintained by the Council. Trees will be of an appropriate scale and species to enable them to be enjoyed by the majority of the community.

2.0 The Principles

The following principles underlie this strategy. Through the Tree Strategy, we will:

- Reinforce identity, landscape quality and enhance visual amenity
- Create and protect sustainable ecosystems, including managing trees as a resource and for protection of fauna and flora
- Foster and facilitate community support for retention and enhancement of trees as further urban development continues and encourage good tree management on privately owned land
- Establish and support partnerships and collaborations to deliver the vision
- Create and manage existing and new tree establishment as long-term assets for the region with commitment to sustainability
- Recognise that there are inappropriate trees located in the streets that need removal or a commitment to long term maintenance of infrastructure
- Recognise that trees can assist with traffic calming in the urban environment

2.1 Governing legislation

There is no legislation requiring consent for the removal of privately owned or Council owned trees currently in Port Pirie. Management of trees, therefore, is the responsibility of the landowner.

The Local Government Act 1999 makes provision for Council, where necessary, to require a landowner to manage vegetation on private land to avoid public obstruction. In the event of non-compliance, having followed a formal process of notification, Council may undertake the necessary work and recover the costs from the landowner.

2.2 Trees in the landscape

Trees can provide scale and form in the urban landscape, softening the impacts of development and providing visual amenity. Trees provide a physical and noticeable link to the seasons of the year. Useful for both framing views and hiding less desirable urban development trees add value to the urban scene.

2.3 The role of parks trees versus street trees

Trees will be given a priority on parks and open spaces. Where other assets including underground and overhead services impinge on existing trees the tree/s will be given priority even if this results in more expensive infrastructure solutions resulting.

On streets it is acknowledged that trees, while important, are secondary in importance to the predominant purpose of the road corridor and at times compromises will have to be considered and made which may result in tree pruning or removal to enable the predominant infrastructure use to be achieved. Street trees may in time have a role in traffic calming and these trees may be impacted on by future road redesign which compromises their locations.

3.0 Implementation

Across the Port Pirie Region we want to ensure we have well managed, appropriate trees in parks, streets and open spaces. Climatic conditions will continue to be a challenge but through careful tree species selection we will, in time, provide a green, well managed, sustainable tree canopy across the region’s urban landscape.

Implementation will be addressed across the Streets and Parks and Open Spaces goal areas outlined in this Strategy.

The actions for these areas, with known costs, will be undertaken consistent with the Tree Strategy Implementation Plan (What we will do plan).

4.0 Streets - What we do now and have done

4.1 Street tree/s vision

Streets will be vibrant, colourful and enhanced with trees. Trees will provide partial shade and cooling to the town areas while creating ecological linkages throughout the urban environment. Long term maintenance costs will be considered in the selection of new trees and in the renewal of existing trees which are impacting on established services.

4.2 Street tree/s – How we will measure our performance

The success of this will be measured by –

- Increase in peoples' satisfaction with street amenity
- Increase in visual amenity where private properties and public area boundaries meet
- Reduction in the number of complaints about roadside trees
- Increase in the number of street trees established on identified arterial and collector routes
- Establishment of new trees in industrial areas
- Reviewing the long term future of large growing, inappropriate street trees, to take account of infrastructure maintenance costs caused by tree related issues
- By benchmarking our street numbers, maintenance costs against other organisations using the Yardstick benchmarks

4.3 Current situation

Council does not currently have an asset register recording its street trees. The development of an asset register is seen as a priority to enable Council to plan routine maintenance work, monitor performance targets and plan for renewal of trees.

What is known is that Council receives about 500 (493 in the 2014 year) tree related requests for service annually, the majority being related to street trees.

In the 2015 community survey responses to questions about trees indicated:

HOW IMPORTANT ARE STREET TREES TO YOU?	RESPONSE
Moderate	16%
Considerable	25%
High	47%
HOW DO WE PERFORM WITH STREET TREES?	**RESPONSE**
Average	40%
Good	25%
Very Good	6%

The 2014/15 street tree budget was 12.7% of the overall parks operations budget. This budget provided for all aspects of maintenance, care, tree planting and establishment.

It is likely that in the 2015/16 year the budget will be structured to recognise the various aspects of tree care and renewal including:

- Tree maintenance/pruning
- Tree removal
- Tree stump removal
- Tree planting
- Tree watering

Council currently has no proactive planting plans in place with the majority of trees planted being replacements for trees that are removed with only a few requests from residents resulting in new trees being planted.

Council removes, on average, 100 plus street trees each year because of tree health or other associated problems.

Historically the Council customer request system, Synergy, has not been used to maximum effect to record tree related requests. Unfortunately, this reduces the reporting options and the ability to measure performance in terms of attendance to issues in a timely way.

Council has in the past inherited street trees through either resident planting or occasional new subdivisions. In a number of cases the species planted are inappropriate as long-term trees or inappropriately sited (e.g. too close to existing footpaths or kerbs, too large at maturity etc.).

In recent years Council has focused on planting particularly small saplings in streets usually of a height less than 0.5m. These have been unsuccessful in terms of establishment and have provided minimal amenity.

The availability of tree planting space within the berm is an issue, as trees continually compete for berm space with underground and overhead services. Services have the higher priority on streets than trees and at times tree removal or heavy pruning has been necessary.

Street trees are maintained as part of the regular activities of the parks operations team. Currently there is little regular checking of street trees to identify routine maintenance. Maintenance in many areas is infrequent and unsympathetic to the amenity that trees should be providing. The street trees are not valued as a high amenity asset operationally although recent changes in focus are seeing tree requests better managed in a more timely way.

Historically, when a specialist arborist has been engaged to provide a report on the condition of a mature tree, the brief has failed to include addressing the appropriateness of the tree species to its location and the financial consequences of retaining the tree in terms of ongoing infrastructure repair and management. Essentially the arborist report has been biased toward tree retention without referencing the ongoing cost to Council.

Ornamental pear trees planted but not maintained

Jacaranda with nil maintenance since planting will create a costly future maintenance liability due to poor mature form

4.3.1 Street tree maintenance priorities

The major issues Council now faces are:

- Planting too many trees and maintaining too few of them
- Not having a street tree asset register
- Not looking at the long term consequences of retaining large growing inappropriate trees in urban streets
- Having a low level of skill and knowledge in the internal operational workforce
- Having a disjointed approach to tree maintenance tasks such as stump removal, stake/cage removal, formative pruning, watering etc.
- Maintaining trees which provide visually little amenity value after heavy pruning
- Lacking enough dedicated staff to focus on tree related maintenance

Typical tree maintenance issues, stumps not removed and inappropriate tree selection

Forgotten tree replacement

The priorities for street tree management are:

1. Develop an asset register for street trees
2. Develop a scheduled tree maintenance plan that is achievable
3. Process customer requests for service promptly and report on numbers received and the activities that are being requested to measure long term performance
4. Identify the most problematic street trees where issues if not dealt with will continue to fester causing long term cost and community disengagement
5. Identify all empty street tree planting pits and consider suitability for replanting or removal
6. Develop and implement an ongoing and sustainable watering regime for newly planted trees
7. Reinforce the entranceway plantings into Port Pirie and Napperby with trees of colour and scale
8. Identify the existing irrigation systems for trees and test that they are serviceable and being used where appropriate
9. Identify unnecessary low quality amenity trees for removal

Lack of maintenance

Lack of maintenance

The existing street planting appears to be an uncoordinated mixture of native and exotic trees. There are some very successfully planted

streets where the trees are providing colour, shade and scale to the urban landscape.

As a general rule it is wise when planning an urban street tree landscape to avoid single species use to reduce the risk of possible total loss due to any particular pest or disease outbreak. There are advantages and disadvantages to the use of exotic and/or native trees and the current situation of a mixture of both exotic and native trees is a reasonable platform to build upon.

When selecting street trees there needs to be clear decisions made about what the species of tree is going to offer in the location it is planted and this should influence the choice of species made. Considerations include:

- Scale and form of tree i.e. columnar, mushroom, round
- Seasonal colour through flowers or foliage change in certain seasons
- Consistent appearance i.e. evergreen without significant flowers
- Tree debris from leaves, seed pods, fruits and flowers

This strategy encourages the appropriate selection of trees for specific locations based on a number of factors including:

- Availability of irrigation for both short term establishment and long term support
- Existence of overhead and underground services
- Existence of established tree planting pit
- Community desire to see trees established
- Identified need for greening i.e. private gardens not having space for trees, lack of tree cover in the street, no local park in street

4.3.2 Street tree planting priorities

The Region's towns appear to enjoy a good level of street tree coverage. As there is no tree asset register it is not possible to identify the current level of service across the region or comment on the equitability of the tree cover provided.

There are situations where street trees have been established too close together, reducing the ability for the trees to fully establish and adding an extra maintenance cost to Council for little amenity benefit. An appropriate indicative spacing is not to have more than one street tree within 15 metres of another.

Historically residents have requested street tree planting based on a series of criteria and this was complemented by Council instigated tree planting.

Observationally there appears to be a large number of established tree pits in the streets which do not have trees planted in them, or still have dead tree stumps awaiting removal.
This strategy proposes that as a priority existing empty tree pits be identified and then either replanted or removed ahead of new street tree planting schemes being developed.

Street tree planting will be prioritised as follows:

PRIORITY	STREET TREE PLANTING	ACTION
1	City Centre Port Pirie – Infill planting in existing tree pits	Identify tree pits without trees and implement a renewal program starting with infill trees.
2	Existing tree pit evident – No existing overhead services and underground services not compromised	Identify tree pits without trees and implement a renewal program.
3	Port Pirie – City entranceway planting	Colorful exotic trees such as Jacaranda interplant around existing trees.
4	Existing tree pit evident – Overhead services	Identify tree pits without trees and ascertain if small tree, which would not require height pruning at maturity, would provide significant amenity. If amenity provided only marginal remove tree pit and make good.
5	Regional – Town entranceway planting	Discuss benefits of establishing entrance planting with community.
6	New tree planting	Passively support community-instigated tree planting where there are no overhead services and underground
		services are not compromised.

4.3.2.1 Town entry points

Trees will be established that clearly make a statement that this is an entry to the town by their form, stature and colour. These trees will generally be larger growing vigorous trees which will need space to develop to maturity.

It is proposed to strengthen the plantings leading into Port Pirie from Waratah Street to the City roundabout and from the roundabout along Three Chain Road to around Kingston Road. Currently the plantings are mainly a mixture of Sheoaks, Eucalyptus and a few exotic trees including establishing Jacaranda.

4.3.2.2 Arterial roads

Arterial roads are those significant routes that provide the major access into the towns of the area. Tree planting themes will be developed which will improve visual amenity on major road networks, promote biodiversity, and improve linkages for wildlife.
There are a number of established themes evident which includes the London Planes and Palms in Main Road/Ellen Street and Sugar Gums in the Main Street in Koolunga which are to be continued.

Other than strengthening the entrance points to the city, new tree planting is not being proposed specifically for the term of this strategy.

4.3.2.3 Local/suburban roads

Local/suburban roads are the remaining roads not classified as arterial routes. Trees are to be established that reinforce local neighbourhood identity and create people friendly streets, assist in traffic calming, promote biodiversity, encourage birdlife, provide colour, shade and may demonstrate the changes in the seasons. The focus will be:

- Planting berms which are clear of overhead and underground services where some trees are already established

- Identifying planting pits that currently exist with no tree and establishing trees in these areas
- Planting less trees and establishing more i.e. only planting a tree where maintenance, watering is assured and planting only as many trees as can reasonably be cared for
- Identifying the very large growing trees of the future and deciding if retention is merited and, if so, exploring if intrusion into the road way will make financial sense for the longer term ahead of regular corrective kerb/road surface repair.

4.3.2.4 Townships

Townships include Port Pirie, Napperby, Crystal Brook, Redhill and Koolunga. Trees will be established that reinforce local township identity and create people friendly streets, promote biodiversity, encourage birdlife, provide colour, shade and may demonstrate the changes in the seasons. Trees are also intended to provide a town theme and identity.

Crystal Brook has a theme of mature Peppercorn trees which should be continued. The existing trees are currently exposed to asphalt surrounds and compaction around the roots from vehicles. The layout of car parks around the trees should be addressed to provide a minimum of 1.5m radius of clear, mulched area around the base of each tree. Renewal of a number of these trees should be discussed with the community ahead of implementation.

Crystal Brook severely damaged Peppercorn tree (Schinus molle)

Crystal Brook Peppercorn trees facing the challenge of compaction and vehicle damage

Koolunga has a theme of Sugar gums (Eucalyptus cladocalyx) in Sixth Street in the main town area which should be respected. Additional Sugar gums should be established in the main town area to complement the established trees and recognise the past history these have to the town. The South Australian Register recorded discussion about the planting of these trees in July 1893 as part of a community driven project.

Koolunga Sugar gums complementary planting required in consultation with community

Koolunga Sugar gums (Eucalyptus cladocalyx) planted 1893

4.4 Future (actions table) – Implementation plan

Item	What we will do	Why are we doing it	Who will assist	What will it cost	When will it happen
	ALL STREET TREES				
1	Develop a street tree asset register	To ensure that the Council has a record of its street tree assets, can schedule maintenance and be aware and manage risk in terms of tree health	Arborist/Port Pirie staff	$25,000	Commence 2016/17
2	Review the 50 (approximate) most maintained/problem street trees in consultation with the local community with a view to reducing risk and maintenance costs in the mid term	Port Pirie are looking to address over a period of time the problem trees/situations with a view to finding long term solutions	Arborist/Port Pirie parks staff	$30,000 per annum	Commenced 2015
3	Record all tree related requests for service into Synergy	To ensure we capture customer requests, have the ability to sort and report on various aspects of tree issues being requested	Customer support staff	Nil	2015-16
4	Implement the decision making flow chart where tree removal and replacement is being considered	To ensure that the community understands the impacts tree removal has on others both positively and negatively at times. To ensure fair consideration is given to the issues and that in the event of removal replanting is discussed and agreed	Parks and Recreation Supervisor	Nil	2015-16
5	New trees will not be planted directly under overhead wires unless an existing planting pit	To reduce the need for brutal and expensive pruning of the trees around power lines in future	Parks and Recreation Supervisor	Nil	2015 onward

Item	What we will do	Why are we doing it	Who will assist	What will it cost	When will it happen
	exists and then a small growing tree may be considered				
6	The protocol for vegetation management near powerlines – DRAFT January 2015 will be considered in all aspects of tree management	To develop a better understanding between Council and SA Power Networks around urban tree management	Parks and Recreation Supervisor	Nil	2015 onward
7	Review existing irrigation schemes, especially in City centre/town centres for functionality	Establishing trees fail due to lack of basic maintenance including irrigation. It is apparent that some trees have irrigation system that don't appear to work (London planes in Port Pirie for example)	Parks and Recreation Supervisor	Part of existing general maintenance	2015 onward
8	We will take responsibility for improving the management of street tree and be observant of trees needs	Too many street trees fail to establish through neglect, obvious tree maintenance is left unattended to and ownership of the tree assets is left to others	Parks and Recreation Supervisor	Nil	2015 onward
9	Develop an approach to summer watering that is achievable and repeatable	The watering schedule appears to be ad hoc currently. All new trees planted in past 3 season require water as a general rule if no irrigation scheme is evident	Parks and Recreation Supervisor	Nil	2015 onward

REGIONAL TOWN ENTRY POINTS

1	Develop tree plans for Regional Town entry points subject to agreement with the community	From the themes identified in the strategy improve visual amenity at major entry points to make a statement about this being the	Parks and Recreation Supervisor/Landscape	$50,000	2015-16

Item	What we will do	Why are we doing it	Who will assist	What will it cost	When will it happen
		City/Town entrance	Architect		
2	Review existing trees for appropriateness of species and site suitability	At the town entry points review the existing tree species, form and establishment and where necessary look to supplement with additional tree planting	Parks and Recreation Supervisor	Nil	2015-16
3	Identify initial maintenance required of existing trees and schedule for completion	Review existing established trees and identify appropriate remedial and corrective pruning and tree removal	Parks and Recreation Supervisor /Arborist		2015-16

TOWNSHIPS

1	Develop tree planting action plans for the townships	From the themes identified in the strategy improve visual amenity in townships. Improve visual appearance, promote biodiversity, shade and improve linkages for wildlife in streets	Parks and Recreation Supervisor	Nil	2016-17
2	Koolunga	Historic theme of Sugar Gums in main town area	Parks and Recreation Supervisor	$10,000	2016-17

5.0 Parks - What we do now and have done

5.1 Parks tree vision

Parks are vibrant, colourful and enhanced with trees. Trees will provide partial shade and cooling to the park users while creating ecological islands and linkages throughout the area. Trees will be planted that provide scale and perspective. Long-term maintenance costs will be considered in the selection of new trees and in the renewal of existing trees which are impacting on established park services and community buildings.

In time residential intensification and population growth is likely to place greater emphasis on parks to provide trees of scale as garden sizes potentially decrease. Parks may be utilised to provide a diverse range of vegetation requirements including indigenous restoration, wildlife havens and ecological corridors along with protection of established heritage trees.

Parks provide an opportunity for Council to establish large growing trees of mixed species in the urban environment.

The vision for Parks includes other open space such as drainage/utility reserve and cemeteries.

5.2 Park Trees – How we will measure our performance

The success of this will be measured by –

- Increase in peoples' satisfaction with parks overall amenity
- Reduction in the number of complaints about park trees
- Increase in the biodiversity of flora and fauna in parks
- By benchmarking our park tree maintenance costs against other organisations using the Yardstick benchmarks

Crystal Brook Park – Jacaranda providing shade to seats

5.3 Current situation

Council currently has little formal knowledge of its existing park tree assets. Trees are not recorded on an asset register and tree planting programs in past years have been informal. Maintenance has been unscheduled and undertaken on an “as needs” basis. Port Pirie does, however, have a good selection of park trees and generally the parks of the region present a feeling of being well covered with mature trees.

From an informal visual overview it is observed that there is a reasonable species selection and age range of established trees. There does, however, appear to be a gap around the provision of young (5 to 20 years) trees which indicates that tree planting has either not been undertaken or has been unsuccessful in the recent past.

Current practice is to combine the tree maintenance budgets for both street trees and park trees into a single budget. The portion of the tree budget expended on park trees is approximately 7.7% of the parks operational budget.

Council currently has no proactive planting plans in place with the majority of trees planted being replacements for trees that are removed with only a few requests from residents resulting in new trees being planted.

Council removes on average five mature/semi mature park trees each year because of tree health or other associated problems.

Park trees are maintained as part of the regular activities of the parks operations team. Currently there is little regular checking of condition of park trees to identify routine maintenance.

Informal records indicate that the community do not make a lot of requests with regard to maintenance or planting in parks. Observationally it is clear that in some parks tree and large shrub planting has not been undertaken successfully in recent years leaving large areas of potentially amenity planting as bare soil.

Threadgold Park dead tree

5.3.1Parks tree themes

There does not appear to be any strong specific tree themes for any of the parks in the Port Pirie Region. There is scope to develop, over a period of time, a selection of parks with strong tree themes such as an orchard park with fruiting trees or, alternatively, with a single species theme.

The climate, while challenging, would support a range of fruit trees which could lead to a theme of a community fruit tree park for both education and community interest.

When selecting park trees clear decisions should be made about what the species of tree is going to offer in the location it is planted into. Parks provide the opportunity for large growing trees.

Considerations include:

- Purpose of park to avoid compromising with inappropriate tree selection
- Scale and form of tree i.e. columnar, mushroom, round
- Seasonal colour through flowers or foliage change in certain seasons
- Consistent appearance i.e. evergreen without significant flowers
- Tree debris from leaves, seed pods, fruits and flowers

Mulberry (Morus) Port Pirie

Feijoa (Acca sellowiana) Port Pirie

5.4 Future (actions table)

Item	What we will do	Why are we doing it	Who will assist	What will it cost	When will it happen	General comments (while strategy is developed)
	PARK TREES					
1	Provide opportunity for theme planting in parks where the community are engaged and motivated to participate	To improve on existing themes and to provide a wide variety of trees and plants for people to experience. Ensure that Port Pirie's heritage over time is reflected, maintained and enhanced through large tree planting	Parks and Recreation Supervisor/ Community organisations (to be identified)	To be identified	Subject to community desire	Combination of existing park tree planting budgets. This is really about identifying the parks most in need of planting (likely to be in the poorer areas), developing a theme and implementing planting and maintenance over a number of years with an engaged community. Themes could include orchard trees.
2	Identify the location of existing memorial and commemorative trees in parks	To ensure that these trees are recorded on the asset register and are currently being maintained appropriate	Parks and Recreation Supervisor	Nil	2016 onward	New memorials policy adopted in 2015 relating mainly to physical structures
3	Respect the specific recommendations around tree species that any parks management plan may recommend	To ensure that those parks where specific planning and policies have been adopted are respected	Parks and Recreation Supervisor	Nil	2015 onward	
4	We will take responsibility for improving the management of park trees	Too many trees fail to establish through neglect, obvious tree	Parks and Recreation Supervisor	Nil	2015 onward	Un-observed tree maintenance reflects poorly on Council, it incurs

Item	What we will do	Why are we doing it	Who will assist	What will it cost	When will it happen	General comments (while strategy is developed)
	and be observant of trees needs	maintenance is left unattended to and ownership of the tree assets is left to others				a long term cost and does not instil confidence in those entrusted to maintain and establish the districts trees

6.0 Good tree management

6.1 Routine maintenance

6.1.1 Tree maintenance standards

The Australian Standard currently AS 4373-2007 Pruning of Amenity Trees is the standard to which trees should be managed and maintained.

The objective of this Australian Standard is to provide arborists, tree workers, government departments, property owners, and contractors with a guide defining uniform tree pruning procedures and practices in order to minimize the adverse or negative impact of pruning on trees.

“The intention of this Standard is to encourage pruning practices and procedures that reduce the risk of hazard development, branch failure, pathogen infection and premature tree death.

Trees often require pruning to maintain clearance for utility services and buildings or to improve the safety, structure, and health of the tree. They are also often pruned to improve the amenity of sites in order to enable successful cohabitation between trees and people.

The procedures in this Standard are guided by theories of branch attachment and compartmentalization of decay in trees. Lopping, topping and flush cutting are unacceptable practices.

Assessment of trees and specification of their pruning should be carried out by a suitably qualified arborist. Arborists or tree workers who are familiar with the principles, techniques and hazards of this work should carry out pruning.

Detailed guidelines on root pruning are beyond the scope of this Standard. However, a general outline is included. Should the need arise, expert guidance should be obtained regarding root pruning and excavation around and near trees.

6.1.2 Tree Inventories

Port Pirie does not currently have a tree inventory. Best practice encourages an inventory be developed to record street tree information. A street tree inventory can be a concise record of the tree assets and incorporate both groups of trees as a single asset as well as individual street trees.

The primary information to collect for each tree is:

ITEM	EXAMPLE
Tree/s location	Outside 52 West Street
Maturity	Young/Semi Mature/Mature/Dead
Species	Ornamental Pear (Pyrus calleryana Bradford)
Condition	Visual inspection using IPWEA Practice Note 10.1 – Parks Management: Inventories, Condition and Performance Grading
Estimated remaining life	10 years until replacement required
Presence of services	Located under high voltage lines

The IPWEA Practice Note 10.1 – Parks Management: Inventories, Condition and Performance Grading provides a means of assessing the condition of a tree in a quick and basic way which is adequate for the purpose of developing a street tree inventory.

In the event that a significant street tree/s appears to be in poor health or is deemed to present a potential hazard in future years a more detailed and specific arboricultural inspection maybe required.

CONDITION	GENERAL MEANING
1. Very Good	Healthy tree in correct shape for species and location. Well maintained with no significant defects and no evidence of deterioration. No work required
2. Good	As grade 1 but showing slight defects and deterioration e.g. <5%-10% bark damage, <10% deadwood, but no dead branches. Deterioration has no significant impact on health, safety and appearance of the tree. Only minor work required
3. Fair	Tree generally sound but appearance affect by minor defects e.g. vandalism, 5-10% bark damage, 10-15% deadwood, inappropriate shape, some rubbing and dead branches but no safety risk. Some deterioration beginning to affect the health, and appearance of the tree. Some work required. Replacement/ rejuvenation possible within 3-6 years
4. Poor	Tree has significant defects e.g. 10-15% bark damage, 15-25% deadwood, broken branches, some rot and disease, poor shape and up to 5% dead or rubbing branches, causing a marked deterioration in appearance, health and safety of the tree. Impact from adjacent paths or kerbing. Significant work required Replacement/ rejuvenation needed within 1-3 years
5. Very Poor	Unhealthy tree with serious defects and has died or is about to die in the near future e.g. >15% bark damage, >25% deadwood, >5% dead branches, significant disease and rot resulting in unacceptable appearance, health and safety. Priority replacement required

The primary purpose of the street tree inventory is to identify the total asset size, health and level of service (in terms of tree provision across the towns in the region). Maintenance programs will then be possible to be devised along with renewal plans. Council will also have the ability to benchmark the levels of service, including costs and tree numbers, with other similar organisations.

Existing trees located in parks do not need to be a priority in terms of asset collection, however, any particular specimens/groups that have been subject to concern, community comment or may have been identified as a hazard or significant tree should be recorded in due course.

New tree planting in both parks and streets should be a priority to record in the tree inventory to enable watering and corrective maintenance to be scheduled.

6.1.3 Cyclical street tree programs

Most people appreciate the value of trees and can see some benefit in having them in their street. Appropriately resolving tree issues, particularly along large sections of a street, may create controversy because many people have a strong emotional attachment to the trees in their street. On the other hand there are likely to be some people without this attachment who view the situation objectively.

It is more difficult for the general public to consider local tree matters with the same level of objectivity that they would have for renewing an aging water main. In other words, the community liaison involved in managing of street of trees, which are problematic, is likely to be much less straightforward than renewing a water main in the same street because people tend to respond emotionally to tree issues.

Leaf litter is generated by evergreen species year round. However it is the sudden, seasonal drop of leaf litter from deciduous trees that is a frequent source of complaint. Leaf litter can be a problem but Council accepts that the problem is easily outweighed by the benefits generated by trees. This is unhelpful to those individual property

owners dealing with leaf litter annually but at a region-wide level it may be acceptable.

Port Pirie is struggling to provide regular, consistent maintenance of its street trees. It has established a three-person crew supported by specialist equipment, including a lifting platform which lifts to 5 metres height.

There will always be an element of reactive tree work which needs to be factored into the tree program. However a move to area or zone based proactive programs, where every street in the region that contains a street tree is visited and corrective maintenance undertaken, is an appropriate target to aim for. Realistically, the program should be established so every street tree receives maintenance if required on a bi-annual basis. Increasing resources to assist the establish tree crew, and supporting staff training will improve this situation.

London plane (Platanus x acerifolia) in need of maintenance in city centre

A move to a programed proactive tree maintenance approach will see improvement in the overall tree assets.

Main Street Phoenix palm (Phoenix canariensis) desperately in need of routine maintenance

6.1.4 Park tree maintenance
Park trees do not receive the level of community requests for service that street trees do. As a result, in an environment like Port Pirie where resources are stretched to keep up with street tree requests for service, park trees potentially become neglected in terms of routine maintenance.

"The strength with which the tree grows, known as vigor, must remain high enough to prevent attack by disease-causing agents such as bacteria, fungi and insects."

US Department of Agriculture 1993

Newly planted trees in parks require the same routine maintenance as street trees and also need to be included in watering programs.

A program of tree maintenance should be based on each park being scheduled for routine tree maintenance, where possible, every third year. This would involve all trees being inspected and appropriate corrective work being undertaken. Current resources would not be adequate to see this implemented however. Alternative approaches to achieving this target may need to be considered.

Priority should be given to the urban parks identified in the yet to be developed parks strategy which have the highest classification in terms of usage, location and risk to users and property.

6.2 Tree Planting

6.2.1 Street Tree Planting Standards
The Port Pirie Service Standards set out a methodology for street tree planting. Adequate care and time needs to be spent preparing a large tree planting pit and reducing compaction to enable root penetration. Correct staking, watering and follow-up routine maintenance will give the tree the best opportunity to develop.

The following diagram is the standard approach used by Council.

6.2.2 Park Tree Planting Standards
Park tree planting usually provides a less restricted site than street tree location. The tree pit preparation is similar, however, the use of root guards will not generally be required.

Park tree planting should, however, be targeted to be located away from kerb edges and locations where infrastructure is likely to be impacted by an establishing tree. Generally smaller grade trees can be planted in parks.

6.3 Trees under wires

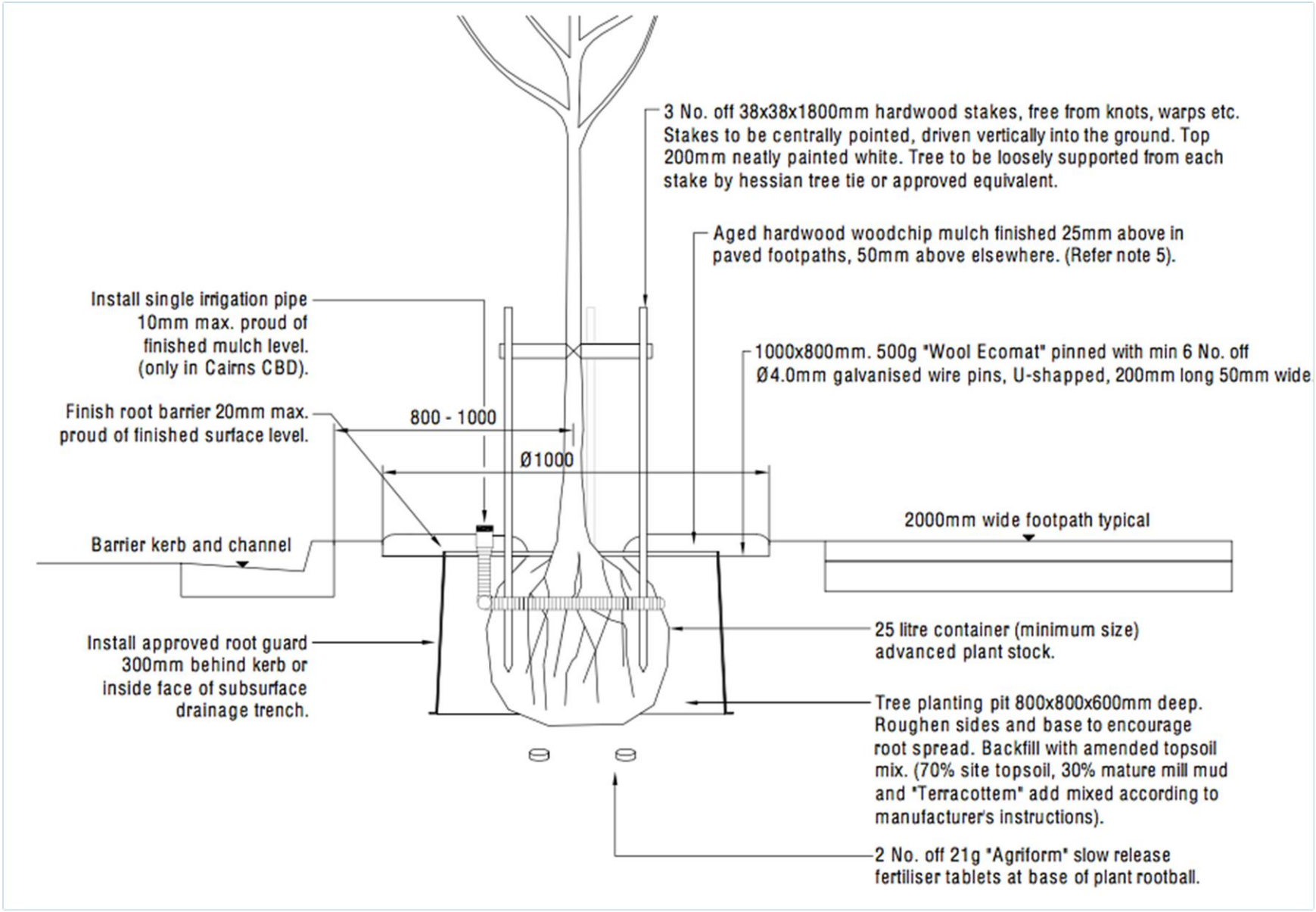
Inappropriate species planted under wires have caused extensive and unnecessary maintenance costs to the region for many years. SA

Power Networks have developed a “protocol for vegetation management near powerlines” in draft January 2015. SA Power Networks have outlined the risks they have to manage around continuity of power supply, bush fire issues and the significant impact that harsh pruning has on the health and amenity of the urban trees. Long term strategies are suggested around staged removal programs of some of the offending trees along with outlining the appropriate clearances required for the varying electrical assets.

It is in Port Pirie’s best long term interest to be party to the draft agreement and provide encouragement and support of the approach that SA Power Networks are taking.

At a local and more immediate level, future tree planting needs to be respectful of the limitations of locations with overhead wires. The following rules are to apply:

- No new street trees are to be planted under wires unless there is an existing tree pit which does not have a tree.
- Where there is an existing tree pit a decision is to be made around the amenity a small tree might provide against the other alternative of removing the tree pit and making good the surface
- Where an existing tree pit exists and is to be planted, only species which will not impact on overhead wires are to be considered for planting.
- As a general rule, if there are overhead wires, street tree plantings will be focused on the side of the street without wires



Standard tree planting and staking method

7.0 Standard operations

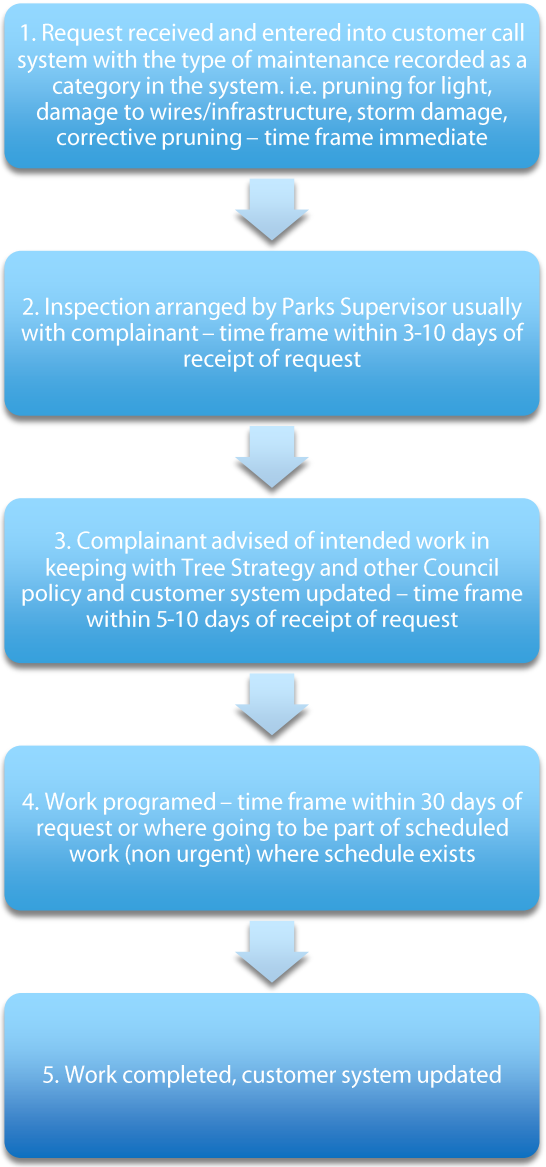
7.1 Street tree request for service

Council receives many requests for tree maintenance. These are to be logged into the customer service system to enable reports on the type and number of requests to be made. For maintenance requests it is not proposed to have a standard form for completion, as most resulting work is non-contentious. It is in Port Pirie's best interest to try to undertake significantly more routine maintenance ahead of individual service requests.

For this to be successful however, a firm, achievable program of routine work needs to be established so customers can be advised of when the tree teams will be undertaking this work and requests for service can be incorporated where possible. Clearly, there will always be a significant element of unscheduled work.

7.1.1 Decision flow chart – tree requests

Tree maintenance requests will be processed as follows (guided by risk):



7.2 New street tree requests

Council has, in the past, had a healthy and proactive approach to requests to plant street trees. However, the full life cycle cost of the tree planting has not usually been assessed and considered against the amenity that the tree is intended to provide during its life.

This strategy focuses on utilising the existing street tree planting pits that are currently unplanted as well generally looking to plant less street trees and establish more of those that are planted.

Where residents request a street tree to be planted and there is a vacant tree pit with no overhead wires evident this should be seen as a priority for planting. Where overhead wires or underground services are evident, further investigation should be made and if the amenity provided by a planting a small growing tree justifies the planting, then the request should be agreed to.

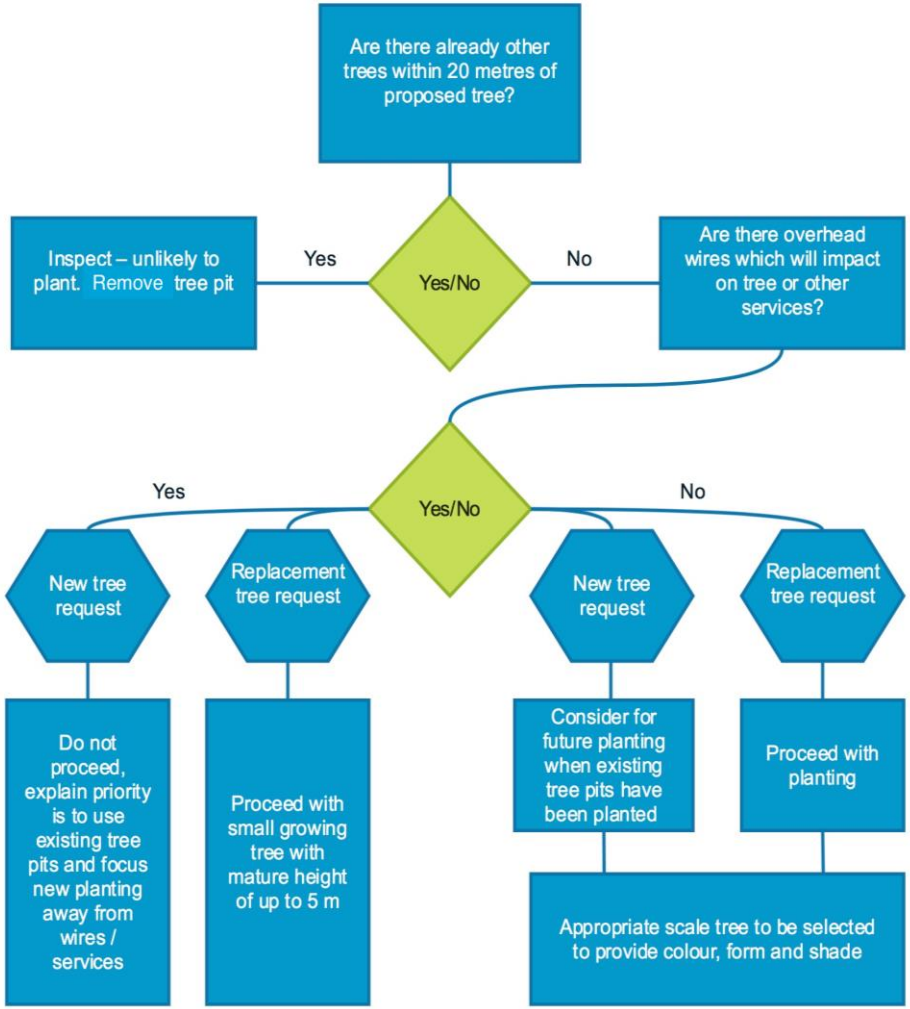
New street tree planting requests, where there are overhead wires or underground services which restrict the ability to establish a tree, should be declined, until Council has caught up with establishing trees in the existing street tree pits.

New street tree planting requests, where the site is not restricted by overhead wires or underground services, should be considered for planting in future when the existing tree pits have been planted.

Street trees generally need space to develop to maturity and there is a balance between creating an appropriate ambiance of green and shade and overplanting where light is restricted and the individual trees struggle against each other for light and space. As a general rule, street trees should not be any closer than 20 metres apart.

Threadgold Street Jacaranda planted too close together.
Poor maintenance where protective cages and stakes not removed

7.2.1 Decision Flow Chart



Tree request for service process

7.3 Tree Removal and Replacement

7.3.1 Decision Flow Chart

This procedure is to be used when considering the removal of any trees under the control or management of the Port Pirie Regional Council.

Tree removal decisions will not be based purely on the preferences of those consulted but also take into account the wider amenity the tree/s are providing for the community. Staff will make an initial assessment using a standard form, based on the Quantified Tree Risk Assessment (U.K.) process.

The removal of trees in “poor” health and/or “poor” structure will generally not require referral to the Director of Infrastructure.

The opinions of both the owner and tenants of any property likely to be affected by a request to remove a Council tree are to be sought and considered equally.

No person is allowed to remove any tree on land owned or managed by Council without first obtaining written permission from Council. Council will normally seek compensation, using an amenity tree valuation method, for any trees removed without its permission.

There are occasions where trees are planted and landscaping installed on public land without Council permission and this planting may not comply with the principles of the Tree Strategy. Removal of these trees and associated landscaping is often necessary for safety, policy and maintenance issues. When considering removing these trees and landscaping the general consultation procedure will be followed.

7.3.2 Trees assessed as being an “Immediate Risk”

Only trees that present an “immediate risk” will be removed without prior consultation with adjacent residents or owners. Where some doubt exists on “immediate risk”, a qualified and experienced arborist’s assessment will be considered.

An “immediate risk” relates to risk where “*the danger is to be present, immediate or imminent and not remote either as to likelihood or as to time of occurrence (in other words something not to be expected for years to come)”.*

A written and photographic record will be made by a qualified arborist, detailing the reasons for the tree’s removal. The record is to be available for the Director of Infrastructure to review as soon as is practicable and will be kept in Council’s information system and made available upon request to members of the community.

7.3.3 General Consultation procedure

The responsibility for carrying out this procedure lies with the Council’s parks operations staff.

When considering removing a street, roadside or parkland tree, adjacent residents, property owners and, in the case of parkland trees, “user groups” must be consulted and their opinions taken into consideration when determining an appropriate course of action. Adjacent residents and property owners are those that could reasonably be expected to be directly affected by the trees removal. Examples would include:

- any residence that has a direct and clear line of sight to the tree;
- any properties that the tree provides shade, shelter or screening to; and
- properties within 50 metres of the tree.

The residents and owners are to be provided with a clear and concise assessment of the tree’s condition, the Council’s preferred option and the full range of options that were considered. The information may be provided in writing or orally. The resident’s or owner’s name, contact details and opinions are to be recorded.

Only one opinion is to be considered from each residence and owner/s. The opinion should be sought through the person in charge of or leader of the residence or property. For a resident’s opinion to be formally considered they must be over 18 years of age and regularly residing at the address.

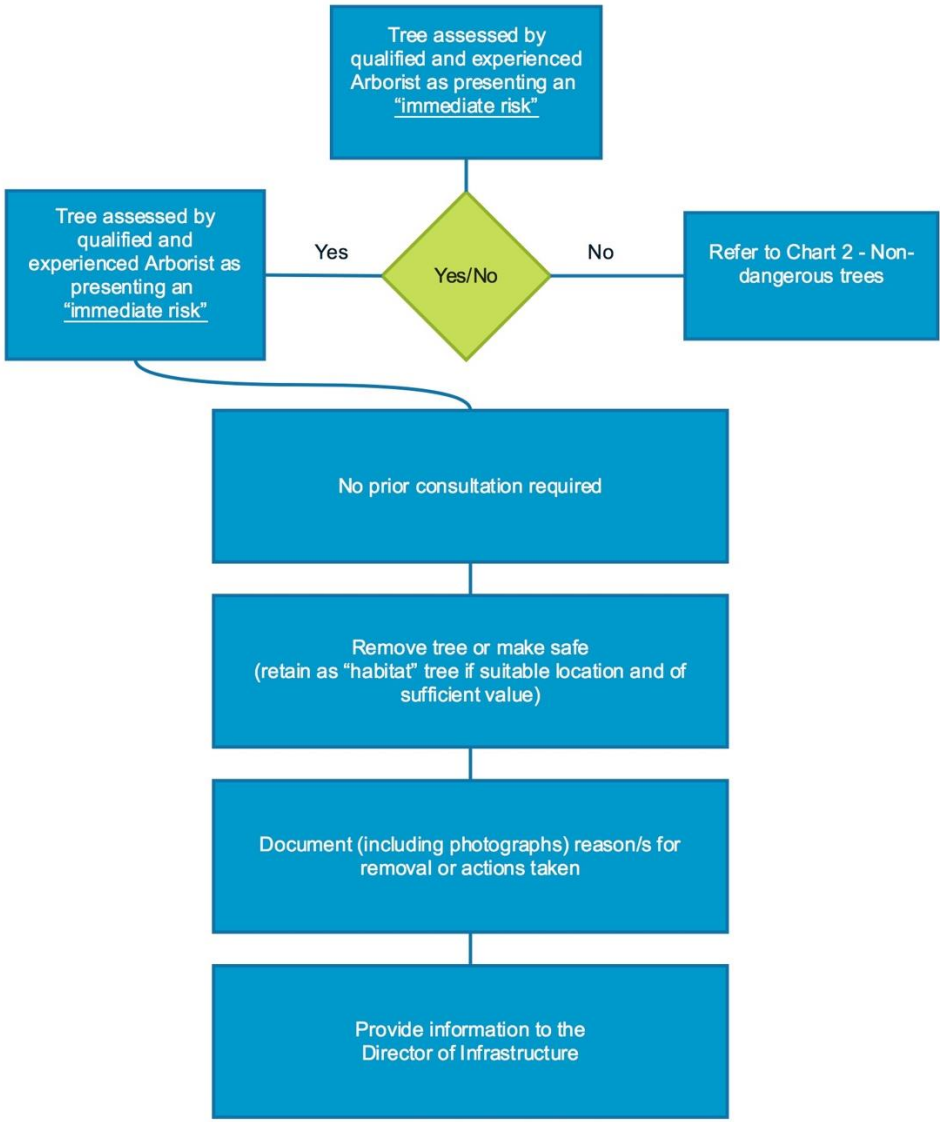


Chart 1 – Immediate Risk Tree Removal Process

If the immediate adjacent resident and owner plus a majority of the residents consulted agree with Council's preferred option, then the work can proceed after seven (7) working days. Any residents who did not agree with the majority should also be informed seven (7) working days prior to commencing the works.

If the immediate adjacent resident and owner plus a majority of residents disagree with Council's preferred option the Arborist must try to resolve the matter through discussion with the affected parties. If consensus cannot be reached the Arborist is to provide a written report to the Director Infrastructure, detailing the trees condition, options for remedial action, list of people consulted and their opinions and a recommendation.

The Director Infrastructure has delegated authority from Council to make decisions relating to trees and if required, in certain situations can refer to Council for a decision. The people consulted are to be informed of the final decision at least seven (7) working days prior to performing the works.

Where no adjacent residences exist no consultation procedure is required, unless the adjacent property owners have specifically requested to be consulted about trees abutting their properties.

7.3.4 Formal Consultation Procedure

The responsibility for carrying out this procedure lies with the Council's parks operations team.

A written request must be received by Council before instigating this procedure. The request must clearly identify the tree or trees concerned, the reason/s for wanting the tree/s removed and who is making the request.

The procedure is as stated in section 7.3.1 but the consultation must be in writing and provide residents, property owners and "user groups" with at least two (2) full weeks to provide a response to Council. The particular Ward Councilor/s and Council's Insurance/Risk Managers

must also be consulted and their opinion considered in making a final decision.

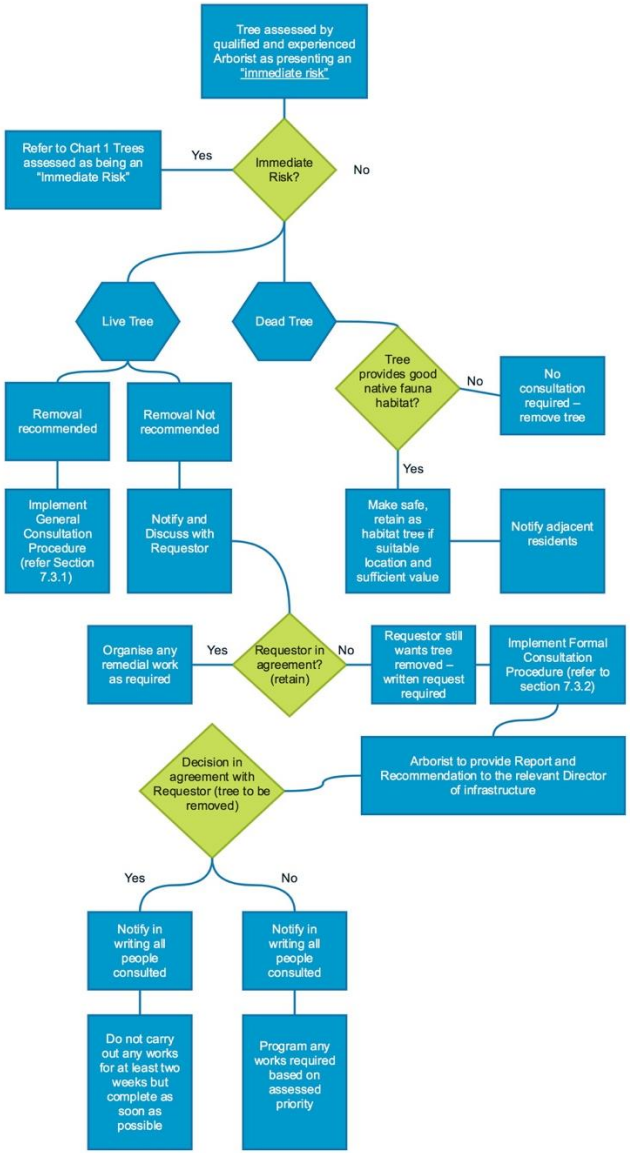


Chart 2 – Non-dangerous Tree Removal Process

The people consulted will be given two full weeks' notice of the decision prior to undertaking any works.

If the people consulted and the parks operations team are all in agreement, then that decision stands. If there is not full consensus, then the parks operations team are to commission an arborist to compile a report and recommendation and the final decision made by the Director of Infrastructure or Council.

The report by the arborist to the Director of Infrastructure is to include full details of the request, the tree/s, people consulted, the full range of opinions, the long term impact on existing infrastructure including ongoing costs and a recommendation.

7.3.5 Appeal Process

The decision by the Director of Infrastructure will be final, except where a petition objecting to that decision is received by Council within the two-week notification period. In these cases a report and recommendation will be presented to Council for their consideration.

7.4 Commemorative/Memorial trees

The Memorial Policy 2015 item 2 makes provision for memorial tree(s) to be planted in any street, park or reserve within the Port Pirie Region subject to the following:

- Memorial trees can be donated for planting in any reserve or street provided they comply with the existing planting design in that place or street and the Standards and Requirements – Design, Construction and Development of Infrastructure Assets Policy.
- A small plaque (200mm x 120mm being standard size) may be installed at the base of the tree.
- All wording on plaques is subject to the approval of the Director Infrastructure and/or nominee.
- No special care or guarantee of replacement is given.
- All costs are to be borne by the donor.

- The location of Memorial Trees is subject to the approval of the Director Infrastructure and/or nominee.

There is scope to consider developing an area where residents could be actively encouraged to donate and assist in the maintenance of trees as memorials. Issues around appropriate sites, how trees are marked with a plaque or electronically and roles and responsibilities around maintenance, replacement and general care are best defined in an operational policy statement.

Given the lack of community desire to date, the development of a more specific policy currently is not seen to be a priority.

7.5 Park tree themes

The Parks of the region are variable in nature and tree coverage. The more urban parks in some areas are of a high quality while others of a similar nature, but in a different community, are poorly maintained and provide a lower level of amenity. A review of the parks, their levels of service and the development of an implementation plan are best covered by a Parks Strategy.

While the parks generally have a reasonable tree coverage there is always a need to monitor the age and selection of trees, to ensure that there will always be trees for the future, as some mature and die others are semi mature and ready to fill the void.

Parks provide the opportunity to provide for both large growing trees and tree themes. There does not appear to be any specifically planned tree themes in the parks, the use of Australian species in many of the non-irrigated parks has been sensible and provides useful habitat and shade which should be continued.

Currently there is no special interest tree planting in parks that is evident. Consideration could be given to developing a specific tree theme in an appropriate park, which could include an urban orchard for education and interest purposes. An irrigated site would be appropriate for this type of theme and ongoing care would have to be provided through the establishment phase.

8.0 Appendices

8.1 Street Tree Planting List

Street Tree Species List

STREET TREE SPECIES

Enquiries: Allan Henderson, Parks & Recreation Supervisor
P: (08) 8633 9666, E: council@pirie.sa.gov.au

The following is a list of tree species that Council selects from when supplying trees for ratepayer requests or for streetscape developments. The list consists of proven varieties and species that Council is trialling. The list is divided into two sections so that overhead wires are taken into consideration.

NB: This document is to be read in conjunction with Port Pirie Regional Council's Tree Strategy and Tree Policy.

SPECIES SUITABLE FOR USE UNDER OVERHEAD POWER LINES

Callistemon harkness (Gawler Hybrid Bottlebrush)
Bottlebrush tree to 5 metres with weeping habit, profuse flowering, drought and heat tolerant and well proven in Port Pirie, and provides great shade and greening.

Cupaniopsis anacardioides (Tuckeroo)
Dense evergreen tree with foliage resembling the cashew tree, spreading canopy, leaves are pinnate, dark green and shining. Has good potential for street planting and has been used in Adelaide since 1998, is growing well in Memorial Park and Frank Green Park.

Eucalyptus erythronema (Red Flowered Mallee)
Attractive small upright gum tree to 4-5 metres with smooth bark and spectacular red flowers. Drought and heat tolerant and a proven tree in Port Pirie.

Koelreuteria bipinnate (Golden Raintree)
Small semi-deciduous tree to 4-5 metres, lush green foliage and copes well with heat, spreading canopy. Has pale pink flowers in late winter, single specimen in Threadgold Street and more on Florence Street near court house, will require good watering over summer.

Koelreutaria bipinnate would be the first choice in our region as it withstands leaf scald better and retains its leaf longer. This has been very difficult to obtain so in its absence Koelreuteria panniculatte could be used.

Melia azedarach "Caroline" (White Cedar, Pride of India)
Useful grafted form of Melia for streets with wide verges or footpaths. Grows to about 8m and will have dense spreading crown. Quite quick growing in well drained location. Will tolerate some drought conditions. Attractive pink flowers in spring.

SPECIES SUITABLE FOR USE UNDER OVERHEAD POWER LINES (Cont'd)

Lagerstroemia (Crepe Myrtle)
<u>Cultivars:</u> Tonto – pink to red flowers, Tuscarora - fuchsia pink flowers, Natchez – white flowers
Attractive small tree or large shrub with beautiful flowers in pinks, white or reds. Deciduous with appealing coloured bark in maturity and colourful autumn colour.

Likely to need some irrigation in dry periods. Has not yet been trialled in Port Pirie but worthy of consideration. Should also be used in group plantings such as large park garden beds.

Angophora hispida (Dwarf Apple)
Angophora hispida is the smallest growing member of this genus. Like many plants growing between 6-10 metres, it can be trained either as a multi-stemmed shrub or as a single-trunked small tree.

This has potential to be used as a street tree. Appears to be a tree that will grow in our area. This species is currently growing well in Adelaide and it is also on SAPN's approved list for planting under power lines.

SPECIES SUITABLE FOR USE ONLY IN SITES <u>WITHOUT</u> OVERHEAD WIRES

Corymbia citriodora (Lemon Scented Gum)
Excellent tall, upright eucalypt that should be used if space allows, grows well in Port Pirie.

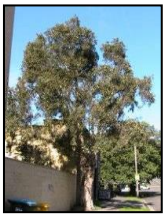
Eucalyptus steedmanii (Steedmans Gum)
Moderately dense gum tree to 8 metres, and can be single or multi stemmed, does not develop heavy long branches. Grows well in Port Pirie and requires little maintenance once established, excellent shade, almost use under power lines.

Hymenosporum flavum (Native Frangipani)
Tall slender growing tree to about 20m. Very unpredictable shape with glossy attractive leaves and small profusely provided scented yellow flowers throughout the spring and summer.

Will need irrigation and in dry periods and will perform best in good soil and regular irrigation not just when in drought.

Jacaranda mimosifolia (Purple Jacaranda)
Semi deciduous tree to 8-10 metres with very fine leaflets and spectacular blue/purple flowers in spring. Will grow well in Port Pirie if nurtured when young with good watering and fertilising, many specimens along The Terrace and Senate Road. Drops leaf litter in early summer before new foliage appears.

SPECIES SUITABLE FOR USE ONLY IN SITES <u>WITHOUT</u> OVERHEAD WIRES (Cont'd)



Eucalyptus sideroxylon (Red Iron Bark)
Upright tree with red iron bark and grey green leaves.

Pistacia chinensis (Chinese Pistachio)
Well known for its extremely fine foliage, pinnately-compound and rich green in summer, in autumn it develops bright crimson colour and holds on the tree for many weeks. It is as well-coloured as *Rhus*, but without the allergy problems.

Angophora costata (Smooth Barked Apple)
Grows in Victoria on many soil types, but will not tolerate water logging. It thrives on most sites including fully coastal sites that have a high sand content. There are a few pest and disease problems that are obvious with *A. costata,* and the tree is easily-grown in most streetscapes.

Olea europaea "Swan Hill"
This olive was discovered in an orchard near Swan Hill Victoria where it was a 20 year old tree that had not fruited. Cuttings from this tree were sent to the University of California, where its fruitless nature was confirmed. Later, Dr H. Hartmann discovered that it produced little-to-no pollen as well. The tree grows equally as wide-as-tall unless pruned and can be grown easily as a single-trunked tree.

The "toughness" of olives is well known and the non fruiting nature eliminates the weed potential allowing for a tree that has very good potential as a street tree. We currently have 3 of these in Carter Crescent, Port Pirie that have been planted for over a year and growing well.

Acer x freemanii (Jeffersred, Autumn Blaze)
Large growing Maple noted for autumn colour. Likely to grow to 15m + with large spread of crown to 10m.

Would need to be in wide verge, likely to require irrigation although meant to be tolerant of low levels of drought. Could be a useful feature tree in right city centre location.

Pyrus "Capital" (Ornamental Pear)
An Ornamental Pear for streetscapes and small gardens. Narrow and columnar in habit with a strong central leader and upward-curving lateral branches. Grows to 11m tall by 4m broad at maturity. Heavily-flowered in spring, with excellent glossy summer foliage and burgundy to scarlet autumn foliage colour.

Pyrus "Chanticleer" (Ornamental Pear)
Considered by North Americans to be the best cultivar of *P. calleryana.* Growing to 12m tall by 6m broad with a pyramidal crown. In North America "Chanticleer" has been significantly more resistant to storm damage than "Bradford". Grown in North America since 1965, it shows few, if any, faults when grown in sites that are not droughted for more than 3-4 weeks in the summer. It has shown excellent growth in compacted soils and where the root-run is restricted.

8.2 Tree Inspection Form

Visual Tree Assessment – Inspection Report Form.

VISUAL TREE ASSESSMENT
INSPECTION REPORT FORM

DATE OF INSPECTION: _____ **INSPECTED BY:** _____

LOCATION OF TREE: _____

TYPE OF INSPECTION:

☐ First Inspection ☐ Follow Up ☐ Annual Inspection ☐ Bi-Annual Inspection

REASON FOR INSPECTION:

☐ Customer Request/Complaint ……..… *(please provide request number if applicable)*

☐ Identified by Supervisor as Requiring Attention / Follow Up

☐ Reported by Employee as Requiring Attention

☐ Requested by Elected Member/Management as a result of Council Meeting

TREE CHARACTERISTICS

SPECIES: …….

NO. OF TRUNKS: …… **HEIGHT:** ……..… **CANOPY SPREAD:** ……. **DIAM @ 1m:** ……...

FORM:

☐ Generally Symmetric ☐ Minor Assymetry ☐ Major Assymetry

☐ Stag Headed ☐ Stump Sprout Live Crown Ratio …….. %

AGE CLASS:

☐ Young ☐ Semi-Mature ☐ Mature ☐ Over-Mature / Senescent

PRUNING HISTORY: …….

…….

…….

SPECIAL VALUES:

☐ Shade ☐ Screen ☐ Aesthetic ☐ Historic ☐ Streetscape

ZONE 1 – ROOT DEFECTS

ROOT / PRUNING DAMAGE IDENTIFIED: ……

……..

AREA AFFECTED: …….. % **LEAN:** …….

EXPOSED ROOTS: ☐ Severe ☐ Moderate ☐ Low ☐ None

SOIL HEAVING: ☐ Yes ☐ No

ZONE 2 – MAIN STEM / SCAFFOLD DEFECTS

STRESS FRACTURES PRESENT:

☐ Yes ☐ No

Details: ……

CAVITIES PRESENT:

☐ Yes ☐ No ……. % Diameter

Details: ……

BARK / SWOLLEN BRANCH UNION – SEVERE LOADING:

☐ Yes ☐ No

PESTS / DISEASES IDENTIFIED: ……

……..

ZONE 3 - CANOPY

FOLIAGE COLOUR: ☐ Normal ☐ Chlorotic ☐ Necrotic

EPICORMICS: ☐ Yes ☐ No

FOLIAGE DENSITY: ☐ Normal ☐ Sparse

VIGOUR CLASS:

☐ Excellent ☐ Average ☐ Fair ☐ Poor

BRANCHES PROTRUDING:

☐ No ☐ Into Private Property ☐ Amongst Property Power/Phone Lines

☐ Amongst Overhead Wires ☐ Low Over Driveway ☐ Over Road/Footpath

PESTS / DISEASES IDENTIFIED: ……

……..

SITE CONDITIONS

SITE CHARACTER:

☐ Park/Reserve ☐ Footpath ☐ Lawn ☐ Paving/Concrete ☐ Crusher Dust

RECENT SITE DISTURBANCES: ……

……..

PAVEMENT SITE DISTURBANCES: ……

……..

PAVEMENT/KERBING LIFTED: ……

……..

USE UNDER TREE:

☐ Pedestrian ☐ Traffic ☐ Carpark ☐ Recreation ☐ Building

HAZARD RATING

TREE PART MOST LIKELY TO FAIL:

☐ Root Crown ☐ Trunk ☐ Scaffolds ☐ Branches

RISK APPRAISAL:

International Society for Arboriculture assessment formula					**Rating**
Failure Potential	1 = Low	2 = Medium	3 = High	4 = Severe	
Size of Branches	1 = <150mm	2 = 150-450	3 = 450-750	4 = >750	
Target Rating	1 = Occasional Use	2 = Intermediate Use	3 = Frequent Use	4 = Constant Use	
				TOTAL: (Hazard Rating)	

***A hazard rating of 10 or over requires immediate attention*

PROBLEM IDENTIFIED:

☐ Inappropriate Species ☐ In Path of Proposed Constructions ☐ Safety Hazard

☐ Causing Damage ☐ Nuisance ☐ Diseases/Pests

☐ Other ……

RECOMMENDED ACTION

PRUNE:

☐ Reduce Weight ☐ Remove Defective Part ☐ Reduce Crown

TREAT:

☐ White Ants ☐ Other Diseases/Pests ☐ Increase Watering

INSPECT FURTHER:

☐ Root Crown ☐ Decay ☐ Aerial ☐ Monitor

☐ Removal ☐ In House ☐ Contractor …….

PRIORITY

☐ Urgent ☐ 2 weeks ☐ 1 month ☐ Programmed for a later date

OTHER INFORMATION

8.3 Protocol for Vegetation Management Near Powerlines

SA Power Networks - Protocol for vegetation management near powerlines 2016-2018

SA Power Networks

Protocol for vegetation management near powerlines 2016–2018

A process for consultation between SA Power Networks and SA Councils, landholders and the community

Endorsed and developed in consultation with the LGA

Local Government Association of South Australia

SA Power Networks

Protocol for vegetation management near powerlines 2016–2018

A process for consultation between SA Power Networks and SA Councils, landholders and the community

Contents

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Foreword

Vegetation and trees form a fundamental part of our urban and rural landscape and provide a wide range of aesthetic and environmental value and benefits on both private and public land.

However, there are risks associated with trees in relation to their proximity to powerlines. Consequently, SA Power Networks is required to undertake vegetation clearance to ensure community safety and the delivery of a reliable electricity supply to customers.

The management of vegetation is a significant operational cost for SA Power Networks and for electricity consumers who fund the costs of the program through the 'network charges' component of their electricity bill.

Managing vegetation under powerlines is also a complex community issue, particularly as community expectations have changed over time, from a risk-based focus, particularly on minimising fire starts and maintaining reliability, to one that seeks to balance managing those risks with ensuring the health and appearance of trees in our urban and regional communities.

Following considerable community discussion and consultation, SA Power Networks is proposing a move from the current vegetation trimming approach, towards a longer term vegetation management approach that is more sustainable and customised to different regions and environments. While committed to meeting its legislated obligations, SA Power Networks is keen to work with key stakeholders to develop partnerships and improve how vegetation near powerlines is managed.

The key goals of improved vegetation management are:

- Maintaining community safety in urban and regional settings.
- Minimising the risk of fire starts in bushfire areas.
- Ensuring achievement of regulated standards for reliability of electricity supply.
- Reducing the visual impact of tree trimming, particularly in high amenity areas.
- Assisting healthy growth of appropriate trees around powerlines.
- Improving co-operation amongst the various organisations whose activities influence the health and visual appearance of trees.
- Reducing costs in the longer term for the community in managing trees around what is essential community infrastructure.

In November 2013 a Working Group was established with the Local Government Association (LGA) and a number of representative councils to develop a long-term strategy to improve vegetation management and an Independent Reference Group was established in January 2014 to provide ongoing advice and input into key strategic initiatives. The development of a protocol outlining our approach for vegetation management and opportunities for partnerships with Councils and other stakeholders was identified as a priority initiative by both groups.

This protocol outlines the current approach for vegetation management that applies to the bushfire and non-bushfire risk areas. It outlines the baseline programs for vegetation management for which funding is currently provided. If an individual Council requires specific approaches that are above the baseline SA Power Networks programs, the Council will need to contribute funding for their specific programs/approaches. Under current legislation, Councils also have the option to take over trimming in their Council area (with the associated liability).

The protocol is intended to provide a basis for working with key stakeholders to improve outcomes and develop a more sustainable approach that balances the need to manage risk with retaining the value and amenity of trees.

As part of its Regulatory Proposal for the 2015-2020 period, SA Power Networks sought additional funding for a number of specific vegetation management initiatives developed through community consultation. Approval for funding however was not secured from the Australian Energy Regulator (AER), reducing our ability to deliver some of the proposed initiatives outlined in the draft Protocol and our long-term plan, Directions for Vegetation Management. However, SA Power Networks remains committed to working more collaboratively with Councils and key stakeholders to develop a more sustainable approach over the long-term and to implementing initiatives that are cost effective.

Glossary

Aerial Bundled Cables (ABC)
The bundling together of a number of individual conductors for use in an overhead scenario. ABC can be used to reduce vegetation clearance requirements.

Buffer Zone
The additional area around a clearance zone in bushfire risk areas. It defines the maximum extent to which the vegetation may be trimmed.

Bushfire risk areas
An area where a fire could start and readily escape to an unrestricted area of flammable material causing Moderate Consequences. The relevant parts of the state are shown in the maps in Schedule 4 of the Electricity (Principles of Vegetation Clearance) Regulations 2011.

Clearance Zone
The minimum safe distance between vegetation and powerlines. The space is shown in Schedule 1 of the Regulations to the Act.

Conductor
Cable or wire used to conduct electricity – it may be bare, partially insulated or fully insulated. In SA Power Networks, the term 'conductor' usually applies to an overhead wire only. Underground conductors are termed 'Cables'.

Cyclic program
The programmed cutting repeated at no longer than three year intervals, whereby all vegetation identified for clearance is to be cut back far enough from the clearance zone to ensure that no vegetation grows or is likely to bend into that zone before the next programmed cycle cutting.

Emergency cutting
Vegetation clearance work undertaken without notice or programming caused by unforeseen circumstances such as damage to trees or powerlines by storms, or falling limbs resulting from heat stress.

Fire Danger Season (FDS)
CFS declared start and end dates of the Fire Danger Season for each of the CFS Fire Ban districts.

High bushfire risk areas
A subset of the BFRA, an an area where a fire could start and readily escape into an unrestricted area of flammable material, causing Major to Catastrophic Consequences, broadly classified as an area which receives 600mm or more rainfall. HBFRA is an SA Power Networks term not a legislative term used to focus on the higher risk areas.

High voltage (HV)
Voltage of 1,000 volts (1 kV) or more.

Landholder
The property owner or occupier of land subject to clearance requirements.

Low voltage (LV)
Voltage less than 1,000 volts.

Native vegetation
Any naturally occurring plant species which are indigenous to South Australia, including trees, shrubs and grasses.

Naturally occurring vegetation
Any vegetation that has not been planted or nurtured by any person at any time. Although this definition is intended to cover native vegetation of a locality it also includes anything self grown, such as pine and ash, as well as suckers from plants such as poplars and elm.

Non-bushfire risk areas
Areas defined as non-bushfire risk areas in the Electricity (Principles of Vegetation Clearance) Regulations 1996, Schedule 3.

OTR
The Office of the Technical Regulator – State Government agency responsible for administering the Electricity Act 1996 and its Regulations, the Electricity (Principles of Vegetation Clearance) Regulations 2010.

Prescribed area
Each non bushfire risk area of the greater metropolitan area as shown in the maps in Schedule 3 of the Regulations.

Pruning
The practice of removing parts of a tree, such as branches or buds. In relation to powerlines pruning refers to the removal of parts of a tree to maintain legislated clearances.

Pruning cycle
The frequency of the pruning cycle – currently annual in bushfire risk areas and three year cyclic in non-bushfire risk areas.

Regrowth Zone
The area around a clearance zone in a non-bushfire risk area. It defines the indicative extent to which vegetation can be trimmed.

Scoping
The inspection of feeders for the purpose of scoping annual, cyclic and pre-summer cutting programs.

Span
The distance between stobie poles measured in metres (m).

Vegetation clearance
The clearance of vegetation under powerlines to meet legislative requirements.

Overview

Why do we prune vegetation?

The key drivers for managing vegetation near powerlines are to:

- mitigate bushfire risk
- maintain reliability of electricity supply
- ensure public safety
- ensure legislative compliance.

Trees are pruned to meet the clearance zones defined under the legislation. This is determined by whether the vegetation is in a bushfire risk area or a non-bushfire risk area, the voltage of the conductor, span length, whether the line is insulated or bare, and if the line is on public or private land. Clearance zones also consider the movement of the trees and the growth and regrowth rates of the trees during the cyclic interval.

When do we prune vegetation?

- In bushfire risk areas, we currently undertake an annual vegetation clearance program and a pre-summer patrol.
- In non-bushfire risk areas, we currently undertake a three-year cyclic program of vegetation clearance.
- Metro 33/66kV, we undertake an annual program.

Who prunes the vegetation?

Our vegetation management program is undertaken by our vegetation contractors who operate to specific legislated and contracted requirements. Our current contractor for vegetation clearance is Active Tree Services.

How do we prune?

A detailed operational plan is developed to outline the annual clearance program in bushfire risk areas, the three-year cycle in metropolitan Adelaide (prescribed area) and non-bushfire risk areas, and the metro 33/66kV program.

The contractor inspects the feeders for the purpose of scoping annual, cyclic and pre-summer cutting programs. The amount of vegetation that needs to be trimmed is determined by the requirements set by legislation.

Introduction

Vegetation and trees form a key part of our urban and rural landscape and provide a wide range of aesthetic and environmental benefits and values.

SA Power Networks delivers electricity to approximately 850,000 residential and business customers across South Australia and our network includes more than 71,000km of overhead powerlines. Managing trees and vegetation near these overhead powerlines is critical to mitigating bushfire risks and providing a reliable and safe supply of electricity to our regional and metropolitan customers.

The current vegetation management practices have, at times, resulted in complaints from Councils and the community in relation to the visual impact of pruning activities when the clearance distances are applied as defined under the legislation.

This protocol outlines the practices SA Power Networks will employ to manage vegetation near powerlines to help us improve outcomes to address community concerns while meeting our legislated obligation to minimise risk.

1.1 Purpose

The purpose of the protocol is to:

- Outline SA Power Networks' approach and the practices to be employed to manage vegetation near powerlines.
- Provide a shared vision for vegetation management near powerlines in meeting our legislation.
- Provide guidance on how vegetation around powerlines should be managed.
- Outline responsibilities of other stakeholders in relation to managing vegetation near powerlines.

The protocol is intended to act as a high level document outlining our commitment to improving how we manage vegetation and working more collaboratively with key stakeholders. The protocol will be supported by more detailed Fact Sheets and Technical Reports as required. SA Power Networks has also developed a Discussion Paper that outlines our long-term plan for vegetation management.

SA Power Networks is keen to work with Councils to develop programs more tailored to suit regional differences and needs, including location and species-specific pruning programs and detailed work plans for individual Council areas.

The key objectives of the protocol are to:

- Outline our current responsibilities in relation to vegetation management near powerlines.
- Work with Councils and key stakeholders to improve our approach to vegetation management.
- Improve community understanding of our vegetation clearance obligations.
- Outline the alternatives to pruning vegetation near powerlines.
- Balance our legislative requirements with community expectations.

1.2 Vision and long-term objective

Vision

Vegetation and trees form a fundamental part of our urban and rural landscape and provide a wide range of aesthetic and environmental benefits and values on both private and public land.

SA Power Networks' long-term vision in relation to vegetation management is to reduce the level of vegetation clearance over time and implement strategies that recognise regional differences. As an organisation, we are keen to work with key stakeholders to develop partnerships and improve how we manage vegetation near powerlines to achieve this goal.

Managing vegetation under powerlines is complex and it will take time to balance the legislative requirements with community expectations. Community education and awareness, undertaking trials with Council and ongoing research and development will be fundamental to achieving this balance.

While vegetation and trees have a wide range of values in the landscape, there are risks associated with trees in relation to their proximity to powerlines. SA Power Networks is required to undertake vegetation clearance to ensure community safety and ensure the delivery of a reliable electricity supply to customers.

Directions for Vegetation Management – SA Power Networks long-term plan for managing trees near powerlines

SA Power Networks' has developed a long-term plan for vegetation management that aims to create a more sustainable environment and reduce the need for tree trimming over the next 10–15 years.

The plan includes a range of initiatives that we wish to develop in partnership with Local Government, the community, private landholders and other organisations. A copy of the discussion paper can be found at sapowernetworks.com.au/trees.

1.3 Key stakeholders

There are a number of organisations that undertake tree pruning and there are many influences on street trees, with powerlines being just one asset that impacts vegetation management. For example:

- Local Government – street tree pruning and maintenance, road works and underground works (affects root systems).
- Department of Planning, Transport and Infrastructure (DPTI) – road works, underground works and roadside clearance.
- SA Water and other utilities – clearance around assets and infrastructure, and underground works.
- Natural Resources Management Boards/Department of Environment, Water and Natural Resources (DEWNR) – roadside vegetation and woody weed management.
- Telstra, Optus, NBN – data/network cables.

Clearly, a range of key stakeholders have an interest or role in managing vegetation near powerlines. SA Power Networks will work closely with these stakeholders and develop partnerships to improve how vegetation near powerlines is managed.

Local Government

Local Government is a key stakeholder in relation to vegetation management and SA Power Networks will work collaboratively to improve vegetation management outcomes.

Landholders

Private landholders/occupiers are responsible for the clearance of all vegetation they have planted or nurtured on their property around their private supply lines. This includes vegetation overhanging from a neighbouring property.

SA Power Networks is responsible for establishing and maintaining clearances around public supply lines and for clearing naturally-occurring, non-nurtured vegetation on private land.

Community and residents

The wider community and residents have an interest in vegetation management near powerlines for a number of reasons – including visual amenity, health and value of trees, conservation and community safety. Residents and landholders can get involved either through their relevant Council or direct liaison through SA Power Networks.

Customers

A customer is any person who has a supply of electricity available from the distribution network for consumption by that person, including the occupier of a place to which electricity is supplied or a person seeking an electricity supply. SA Power Networks currently supplies electricity to about 850,000 residential and business customers (at 30 December 2015).

Government agencies

There are a number of agencies that have specific legislative responsibilities in relation to vegetation management. These include the Department of Environment, Water and Natural Resources and Natural Resources Management Boards and their key interests include native vegetation, national parks and environmental requirements.

The Department of Planning, Transport and Infrastructure (DPTI) undertake vegetation clearance along DPTI managed roads to maintain the required clearance envelope. There are opportunities to work with DPTI to identify problem or hazard trees that could be removed to provide benefit to both organisations and improve road safety and visual amenity.

The South Australian Country Fire Service (CFS) is the state government agency responsible for fire prevention and bushfire management and planning.

In addition, there are a number of regulators that regulate the energy industry. The Essential Services Commission of South Australia (ESCOSA) regulates the energy industry in SA, including the licensing of electricity operations and establishment of performance targets. The Office of the Technical Regulator (OTR) administers the Electricity Act 1996 and its Regulations, the Electricity (Principles of Vegetation Clearance) Regulations 2010. The OTR is responsible for initiating any changes to the Act and Regulations. At the national level, the Australian Energy Regulator (AER) is the economic regulator for electricity distributors and determines funding levels based on regulatory periods.

1.4 Engagement with stakeholders

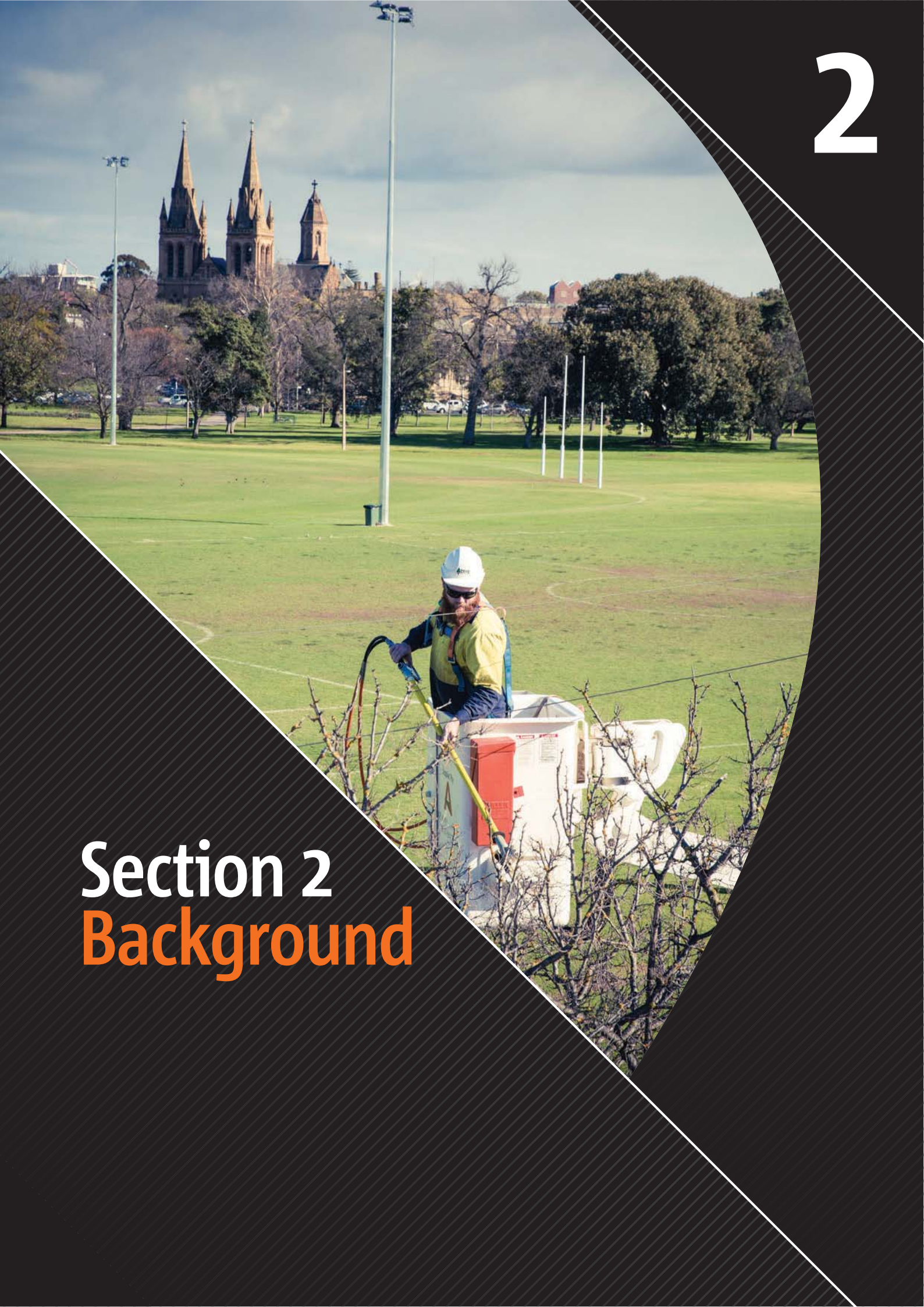
The International Association for Public Participation (IAP2) has developed a Public Participation Spectrum to outline the possible types of engagement that can be undertaken with stakeholders and customers as part of the public participation process. As the public progress through the spectrum there is an increase in participation and types of engagement tools that can be implemented from inform to empower.

Based on the IAP2 Spectrum for Public Participation, the proposed levels of engagement and participation for vegetation management near powerlines are outlined in the table on the next page. The intent is to outline the way we propose to engage rather than the engagement program. Over time the level of engagement may shift, for example from consult to involve, to reflect a change in the intent or a maturing process.

For each section of the protocol, the level of proposed engagement with stakeholders is identified. This will provide stakeholders with guidance on where there are opportunities to work in partnership with SA Power Networks to improve vegetation management and areas where we are just informing stakeholders of our vegetation clearance activities.

Table: IAP2 participation spectrum and how it may be applied for vegetation management near powerlines

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Stakeholder/ customer participation goal:	To provide stakeholders/ customers with information on our legislative requirements for vegetation clearance and our obligations	To obtain feedback from stakeholders/ customers on strategies and initiatives for vegetation management and on our clearance program	To work directly with key stakeholders to ensure issues and expectations are understood and considered in developing strategic vegetation management initiatives	To partner with key stakeholders during all stages of the process, including the development of alternatives and solutions for vegetation management	To place the final decision making in the hands of key stakeholders
Commitment to stakeholders/ customers:	We will aim to keep you informed	We will aim to keep you informed, listen and acknowledge concerns and provide feedback on how influenced decision or process	We will aim to work with you to ensure that your concerns and expectations are reflected in initiatives and provide feedback on how influenced decision or process	We will aim to seek direct advice in developing solutions and incorporate your input into decision or the process as far as practicable	We will implement what you decide
Example of opportunities or initiatives implemented:	• Vegetation management material – website, brochure, banner & poster • Fact Sheets, and OTR Brochure • 'Vegetation management' DVD • 'In the Garden' TV series • Talking Power website • Media Releases	• Information and feedback sessions • Regional and Council presentations • Pre and post clearance surveys	• Annual Local Government Forums • Directions for Vegetation Management Discussion Paper • Scoping and provision of scoping data • Early and ongoing consultation with Councils	• Joint partnerships in initiatives with local government and communities • LGA Working Group • Reference Group for vegetation management near powerlines • Developing different pruning regimes and strategies	• Final decision-making • Not proposed due to level of risk and liability ultimately carried by SA Power Networks



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Section 2
Background

Commitment to stakeholders: We will aim to keep you informed of our vegetation clearance obligations

SA Power Networks is required to undertake vegetation clearance to ensure community safety and deliver a reliable electricity supply to customers.

2.1 Legislative requirements

Section 55[1] of the Electricity Act 1996 imposes a duty on SA Power Networks to take reasonable steps to:

- keep vegetation of all kinds clear of public powerlines under its control; and
- keep naturally occurring vegetation clear of all private powerlines under its control in accordance with the principles of vegetation clearance.

These principles are set out in the Electricity (Principles of Vegetation Clearance) Regulations which provide a mandatory and prescriptive program and regime for the clearance of vegetation in both bushfire risk and non-bushfire risk areas. These include:

- a cyclic cutting program of not more than three years; and
- defined 'clearance zones', with specific references to clearance distances for use in making judgements on the extent and nature of cutting required.

SA Power Networks has a duty of care to take 'reasonable steps' to clear vegetation from its powerlines in accordance with the legislation. This includes considering factors such as the characteristics of the powerlines, surrounding vegetation and industry best practice .

While 'reasonable steps' could be assessed objectively, taking into account, for example, the characteristics of the powerlines, surrounding vegetation and industry best practice, in terms of our vegetation clearance program it refers to the following principles:

- Development of a clear plan and schedule for inspections.
- Establishing clear compliance standards.
- Establishing 'good electrical industry practice'.
- Establishing and incorporating data capture mechanisms into reporting processes.
- Ensuring all training requirements are met (internally and externally).
- Establishing appropriate KPIs and contractual arrangements.
- Developing appropriate measurement techniques for communication of program performance.
- Developing and recording continuous improvement initiatives.

To achieve this, SA Power Networks has a set of criteria underpinning its legislative obligations under the *Electricity Act 1996*, including:

- Establishing clear compliance standards.
- Development of a clear plan and schedule for powerline inspections.
- Establishing and incorporating data capture mechanisms into reporting processes.
- Establishing 'good electrical industry practice'
- Ensuring all training requirements are met (internally and externally).
- Establishing appropriate KPIs and contractual arrangements.
- Developing appropriate measurement techniques for communication of program performance.
- Developing and recording continuous improvement initiatives.

The extent of the clearance zones varies according to whether the vegetation is in a bushfire risk area or a non-bushfire risk area, the voltage of the conductor, swing and sag of the conductor, and whether the line is insulated or bare. Clearance zones take into account movement of the trees and the growth and regrowth rates of the trees during the cyclic cutting interval.

[1] Industry best practice refers to relevant interstate standards and operational experience, as well as recent findings or learnings in relation to powerline clearance, such as outcomes from a Royal Commission.

The provisions of the Electricity Act and the Electricity (Principles of Vegetation Clearance) Regulations place a significant and demanding obligation on SA Power Networks to ensure that vegetation is kept clear of our State's electricity infrastructure in order to protect life, property and the electricity network. The specific clearance requirements were legislated following Ash Wednesday to address risks in both bushfire and non-bushfire risk areas. Failure to adhere to the requirements not only puts the community and our infrastructure at risk, it also has implications in terms of associated liabilities.

SA Power Networks understands its risk and the key liability risks in regard to vegetation management include bushfire and failure to supply (reliability). To manage these risks, a vegetation clearance program is undertaken in accordance with legislated clearance requirements as part of the bushfire risk mitigation measures and procedures are in place to minimise interruptions to supply.

2.2 Australian Standard AS4373 – Pruning of Amenity Trees

There is some Council interest in the inclusion of Australian Standard AS 4373 (Pruning of Amenity Trees) in the Regulations. The Standard however is not easy to apply and is vulnerable to diverse interpretations. Application of this Standard to trimming around powerlines would raise serious doubts in terms of determining the limits of SA Power Networks' legal liability in respect of a fatality, injury or property damage resulting from a fire caused by the interaction of vegetation with electricity infrastructure.

The current cutting approach under the Act and Regulations with respect to liability is based on compliance with the Principles of Vegetation Clearance. Compliance is based on meeting specifically defined clearance distances and these are well understood by all involved in vegetation scoping and cutting and compliance with them is clearly demonstrable. This provides a large element of certainty in an environment where a bushfire, for example, could be started by any number of factors, and places reasonable and defined limits on SA Power Networks' liability.

2.3 Typical clearance requirements

The clearance distances between vegetation and powerlines are a legal requirement defined in the Electricity (Principles of Vegetation Clearance) Regulations 2010.

A clearance zone is the minimum safe distance between vegetation and powerlines. It allows the powerlines to safely swing in windy conditions without being damaged or starting fires. It is a legal requirement for the clearance zone to be kept free of vegetation.

A buffer zone is an additional area around a clearance zone in bushfire risk areas. It defines the maximum extent to which the vegetation may be trimmed. Trimming beyond the buffer zone is not permitted. Trimming vegetation within the buffer zone is intended to ensure the clearance zone remains clear until the next trimming is due.

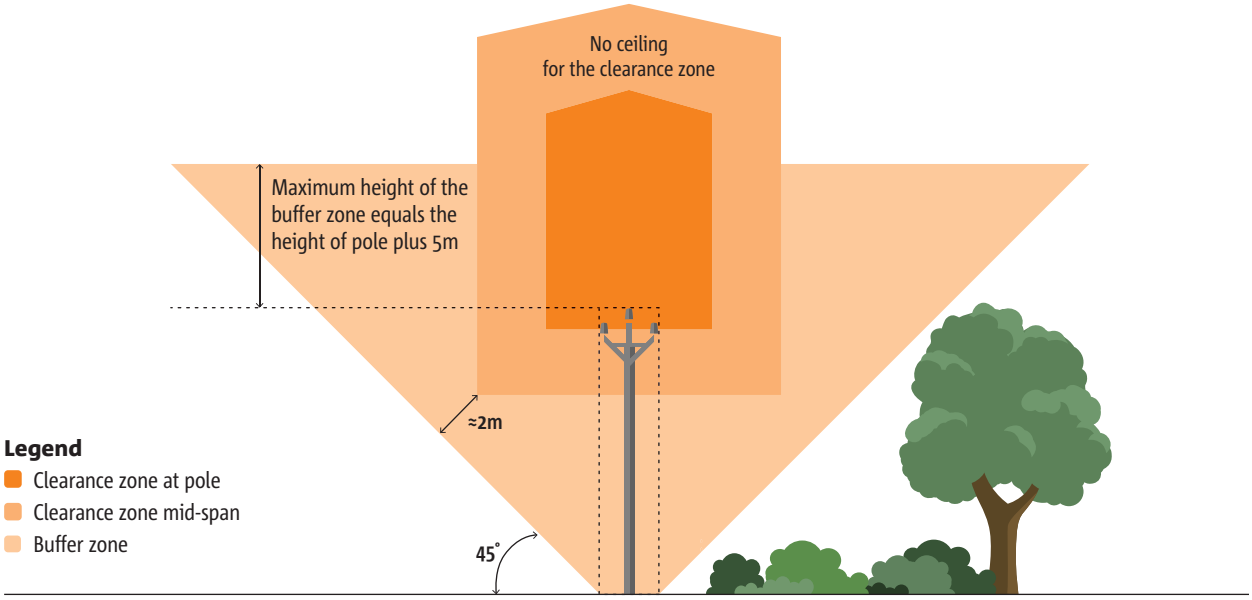
A regrowth zone is the area around a clearance zone in a non-bushfire risk area. It defines the indicative extent to which vegetation is likely to be trimmed. Trimming beyond the regrowth zone is not permitted, without consent from the owner of the tree. The extent of trimming within the regrowth zone will usually be dependant on factors such as the species of tree, the local climate, and the regrowth rate of the tree, to ensure any vegetation remains outside the clearance zone until the next trimming is due (currently cannot exceed three years).

Background continued

Bushfire risk areas

In bushfire risk areas, a clearance zone of 0.1 m is required for fully insulated low voltage powerlines and for uninsulated low voltage powerlines. For all other powerlines, the clearance zone depends on the voltage and length of span of the powerlines. It is important to note there is no ceiling for the clearance zone above uninsulated powerlines in bushfire risk areas. The middle sections of a conductor between two poles can swing or sag more than the sections closer to the poles and require greater vertical and horizontal clearances.

Figure 2.1: A typical clearance zone and buffer zone for an 11,000 Volt (11Kv) overhead powerline between 100-150m in length in a bushfire risk area



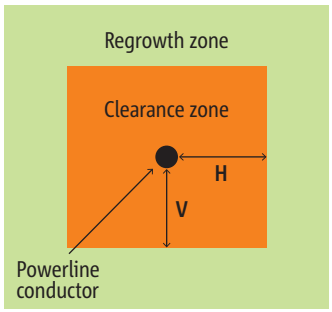
Non-bushfire risk areas (including prescribed areas)

In non-bushfire risk or prescribed areas, a clearance zone of 0.1m is required for fully insulated powerlines (all voltages) and uninsulated low voltage powerlines. For uninsulated high voltage powerlines, the clearance zone depends on the voltage and span of the powerlines.

A typical clearance zone and regrowth zone for an 11kV overhead powerline in the prescribed area (metropolitan Adelaide) is shown below.

The regrowth area, while not defined in the Act, refers to the area around a clearance zone in a non-bushfire risk area. It defines the indicative extent to which vegetation can be trimmed.

Figure 2.2: A typical clearance zone and regrowth zone for an 11kV overhead powerline in a non-bushfire risk area



Vertical (V) and horizontal (H) dimensions of the clearance zone vary according to the type and voltage of the conductor

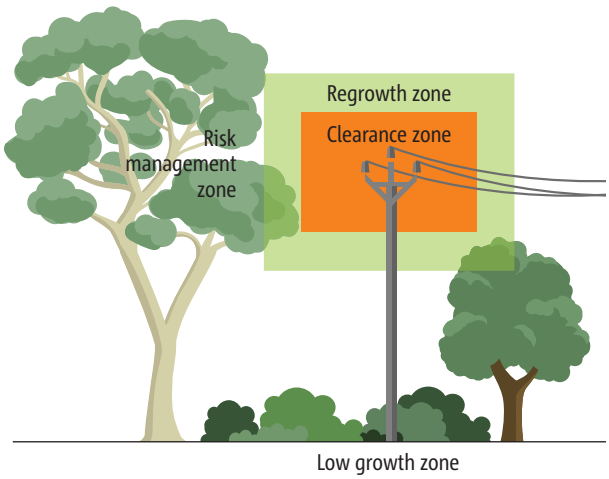
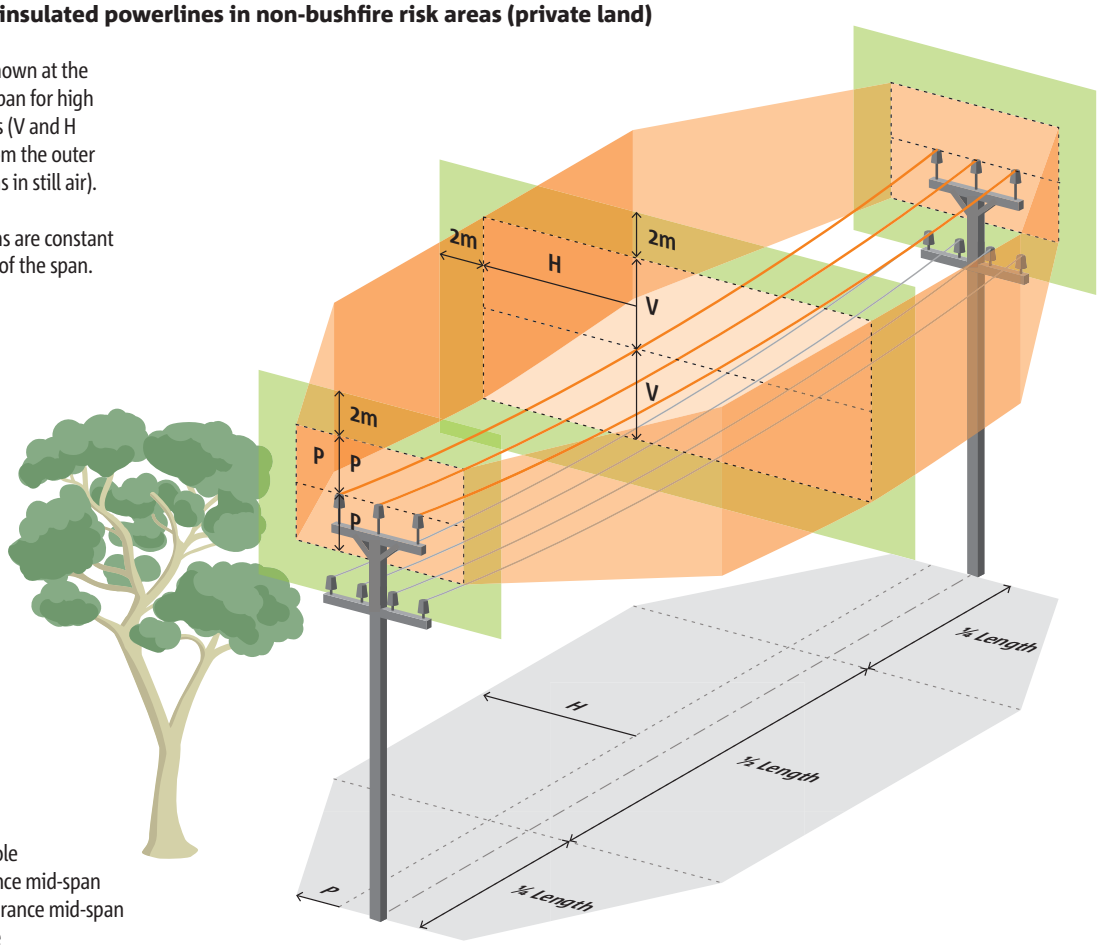


Figure 2.3: Uninsulated powerlines in non-bushfire risk areas (private land)

Clearance zones shown at the poles and in mid span for high voltage conductors (V and H dimensions are from the outer conductor positions in still air).

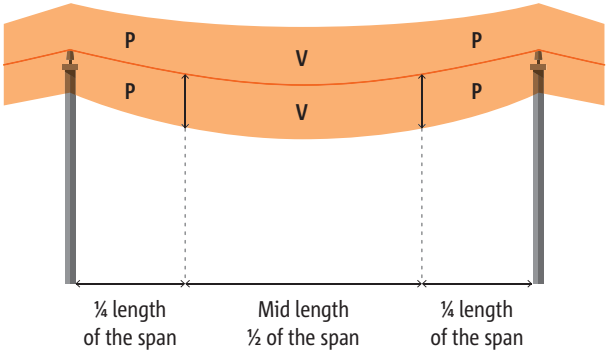
V and H dimensions are constant for the centre half of the span.



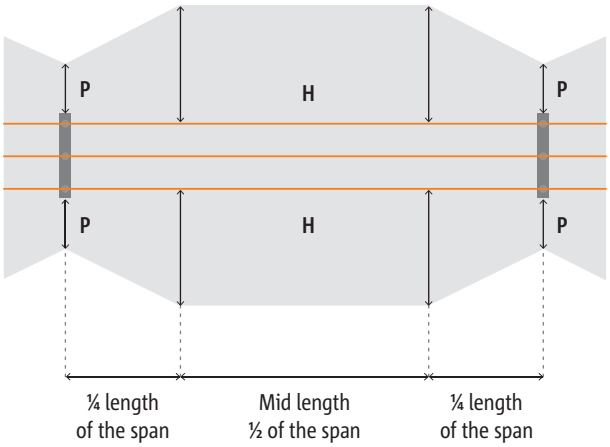
Legend

P Clearance at pole
V Vertical clearance mid-span
H Horizontal clearance mid-span
Clearance zone
Regrowth zone

View of the clearance zone from the side



View of the clearance zone from above



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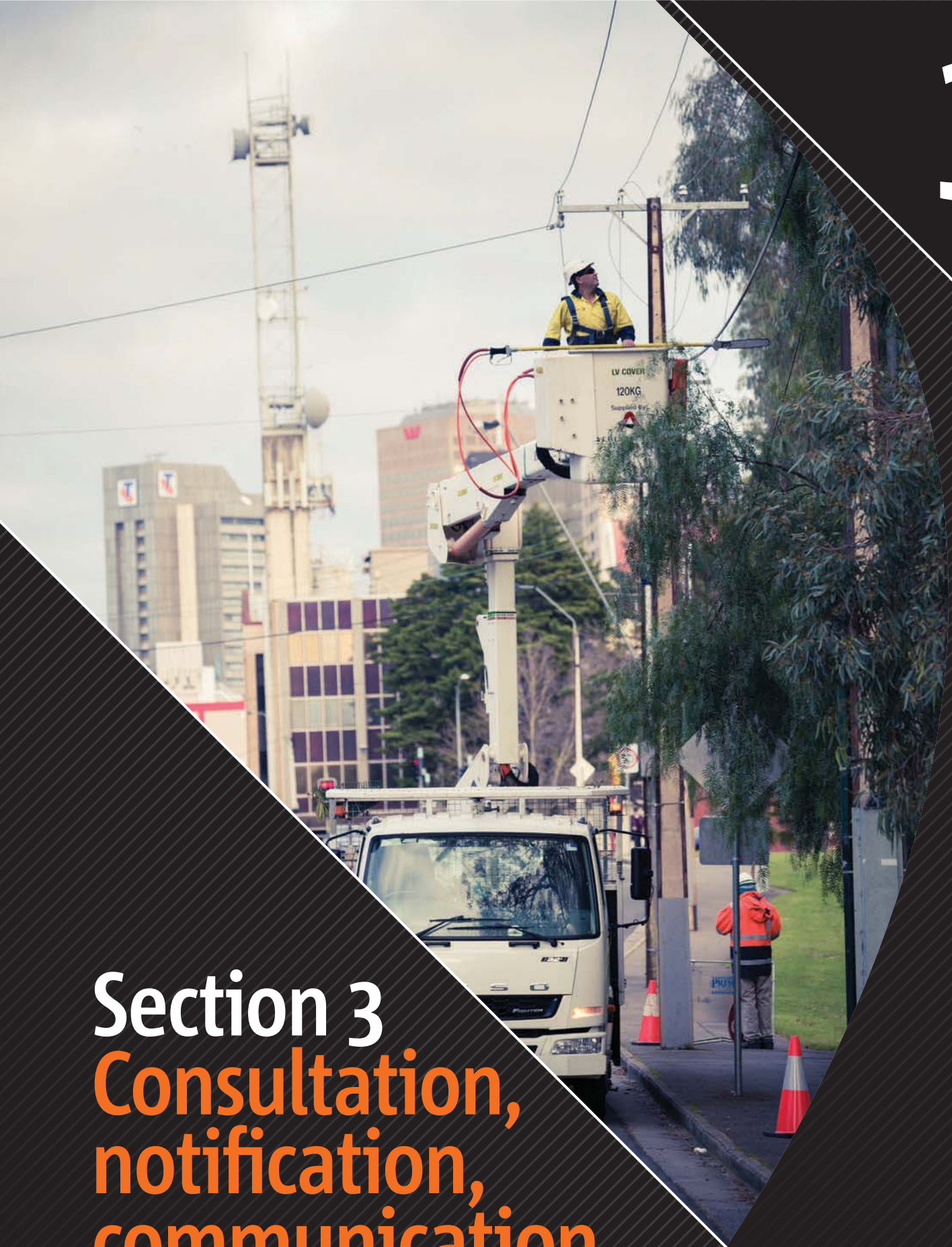


Section 3
Consultation, notification, communication and decision

Consultation, notification, communication and decision

Commitment to stakeholders: We will aim to keep you informed, listen and acknowledge concerns and provide feedback on how influenced decision or process

This section outlines the process undertaken by SA Power Networks and its contractors in respect to notifying or consulting with affected parties in relation to vegetation management near powerlines. It also outlines opportunities to improve how we inform stakeholders of our vegetation clearance program and how we will continue to engage with our key stakeholders.

3.1 Notification

How we engage with landholders and Councils and the notification/consultation process is critical as a significant proportion of customer and community complaints are in relation to the current notification process.

Our legislative requirements

The following table outlines our legislative requirements in relation to notification requirements under the Act.

Table: Notification requirements

Notice	Requirement under legislation	Process or potential improvements
Scoping/Inspection	SA Power Networks shall provide notice of intent to scope/inspect for the purposes of vegetation clearance	SA Power Networks will liaise with the relevant Council prior to any scoping work commencing.
Notice of Intent to Cut – "Notice of Vegetation Clearance Required"	SA Power Networks shall provide at least 30 days written notice to private landholders/occupier of the land prior to vegetation clearance works commencing. This does not apply to works undertaken prior to or after an emergency.	Notices are sent to the private landholders/occupier of the land where vegetation cutting is required to inform them of the obligations to cut or remove interfering vegetation. The owner/occupier has 21 days to object in writing to the OTR.
Notice of Intention to Enter Council Land to Clear	SA Power Networks must provide at least 30 days written notice to Council prior to vegetation clearance works commencing, including details of when and where clearance will occur under the program. This does not apply to works undertaken prior to or after an emergency.	SA Power Networks provides notice to Council and dataset of trees identified for pruning to Council contact. The 30 day notice can be waived if a Vegetation Clearance Agreement (VCA) is in place. No agreements are currently in place with Councils.
Emergency cutting or special purpose	In an emergency, SA Power Networks may exercise a power of entry at any time and without prior notice.	Cutting is undertaken and SA Power Networks informs occupier of work undertaken. This includes in the event of outages, a threat to life or property or cutting vegetation to re-establish clearances. Contact must be made with the occupier prior to or after the emergency to inform the occupier of what was done and why (verbal or written).
Inappropriate species	Where species contrary to the Regulations to the Electricity Act have been planted, SA Power Networks may advise the occupier of this in writing by letter *'Vegetation Planted or Cultivated Near Powerlines'*.	The occupier is given the option of either removing the vegetation, liaising with SA Power Networks regarding tree removal or applying for an exemption under the Act. Notification of the occupier's responsibility to remove the vegetation shall nominate a realistic date by which this is to be done. The OTR must be notified of any instances where the occupier wishes to retain inappropriate species and an exemption may be provided. A copy of the exemption is provided to SA Power Networks.

Our commitment to effective notification and communication

While a number of requirements are placed on SA Power Networks under the legislation, there are opportunities to improve our notification process to maximise coverage and community awareness of our vegetation clearance program in both bushfire and non-bushfire risk areas.

Timing of notification

SA Power Networks will provide Councils with 30 days between notification and cutting to enable Councils to provide information to residents and review the scope of pruning and where required, identify alternative approaches to clearance, such as tree removal or insulating powerlines.

Maximising the notification process

To maximise coverage and community input, SA Power Networks will undertake a mixture of the following methods to notify landholders and residents when we will be undertaking clearance. Whilst this will depend on the area and specific Council requirements may include:

- Advert(s) in local paper(s) outlining when pruning being undertaken in your Council area.
- The use of social media via Facebook.
- Power@MyPlace™ and via SMS (if registered at Power@MyPlace).
- Online via our website – www.sapowernetworks.com.au.
- Provide information on vegetation clearance program to publish on Council websites, Council newsletters, Council forums or community meetings.

It should also be noted that not all of these options will be available to rural landholders and written notification may be the only avenue of notification.

Consultation, notification, communication and decision continued

3.2 Community information and education

One of the key drivers for vegetation clearance is to ensure community safety and deliver a reliable electricity supply to customers. Educational material and information on why SA Power Networks undertakes its vegetation management program assists the public with understanding the clearance parameters and our legislative requirements.

SA Power Networks has developed a range of vegetation management material to improve how we engage and inform our stakeholders on our clearance program and legislative requirements. This includes:

- **'Managing trees around powerlines' brochure, poster and banner** – a range of material available to Councils interested in holding a display in their foyer prior to vegetation clearance commencing in their Council area or to inform customers on our vegetation clearance program.
- **Webpage** – dedicated webpage on our corporate site for Trees and Powerlines to educate our customers on how and why we manage trees around powerlines.
- **Plant Selector Tool** – a comprehensive online resource to improve the selection of appropriate species near powerlines.

The material has been designed to be customer friendly and provide clear and consistent messages to customers on how we manage vegetation near powerlines, as well as providing a resource for Councils to inform their residents about our clearance program and legislative requirements.

SA Power Networks currently also has a number of Fact Sheets, including:

- **Approved Tree List** – provides a list of species considered appropriate for bushfire and non-bushfire risk areas for planting under powerlines.
- **Tree Trimming near Powerlines** – provides an overview of tree trimming around powerlines (eg responsibilities, considerations and legal requirements).
- **Bushfire Safety** – outlines our approach to bushfire safety and measures to mitigate risk.
- **Entering your land** – outlines the main reason SA Power Networks may enter your land and your rights and responsibilities.
- **Trees and Powerlines** – booklet produced by the Office of the Technical Regulator to outline the legislative requirements for vegetation near powerlines.

Information and copies of the Fact Sheets are available on the SA Power Networks website, sapowernetworks.com.au/trees or by calling General Enquiries on 13 12 61. Copies of the current Fact Sheets are also provided in Appendix A.

To improve the approach to community information and education, the following initiatives will be pursued:

- Promote the use and distribution of our vegetation management material eg Shows, displays.
- Use of various media to improve community education/ awareness on fire mitigation, especially pre-bushfire season.

Appropriate Species List

SA Power Networks can assist and provide general advice to customers and the public on the management, planting and maintenance of vegetation close to powerlines.

SA Power Networks has an appropriate species list (available on the website and via the OTR) that provides guidance on the types of trees appropriate for planting under powerlines based on bushfire risk areas or areas where lines are uninsulated (mature height <3m) and non-bushfire risk areas or areas where lines are insulated (mature height more than 3m but less than 6m).

The Botanic Gardens has developed a comprehensive online resource to help achieve more sustainable urban landscapes through improved plant selections. The Interactive Plant Selector Tool is a valuable resource for landholders, Councils and the general public regarding appropriate species selection.

The tool provides detailed information about each plant including suitability for different landscape types, soil and light preferences, physical appearance, growth habits, attraction for native fauna, common landscaping uses and other qualities and cautions. Additional information about trees includes suitability for a variety of urban placements and purposes.

SA Power Networks has funded the development of additional capability for this online tool specifically to highlight plants suitable for growing under powerlines. The database has about 800 trees or plants that are considered appropriate for planting under powerlines, based on their bushfire boundary designation. There are also a number of species of trees that while they may require cyclic pruning are considered appropriate by some Councils and will perform successfully under powerlines in non-bushfire risk areas (ie. pear trees or crepe myrtles). The appropriate species list has subsequently been reviewed and the OTR is seeking an amendment to the existing lists within the Regulations.

The online tool will need to be used by Councils in conjunction with their Tree Management Plans in relation to species selection that suits and meets Council and community requirements.

The link for Plant Selector+ is:
plantselector.botanicgardens.sa.gov.au

SA Power Networks will liaise with key industry and community groups, including the Nursery Industry Association of South Australia (SA) regarding opportunities to work together to improve appropriate species selection near powerlines.

Right Tree, Wrong Place Poster

SA Power Networks has been working with the Nursery Industry Association of SA and has developed a poster to encourage appropriate species selection under powerlines.

3.3 Community and stakeholder engagement

SA Power Networks will continue to work with the community and develop partnerships to improve vegetation management. Community and stakeholder engagement is crucial to developing a long-term plan for vegetation management and improving consumers understanding of our vegetation clearance requirements.

To improve how we work with our stakeholders we have established the following:

- LGA Working Group – a working group with the LGA and several member Councils has been established to improve how we manage vegetation near powerlines and develop a long-term plan for implementation.
- Reference Group for Vegetation Management near powerlines – an independent group has been established to provide horticultural and arboricultural expertise on strategic vegetation management initiatives.
- Annual Local Government Forums to bring local government together and discuss key vegetation management issues.

SA Power Networks has developed a consultation approach for how we propose to engage with Councils in bushfire (six month process) and non-bushfire (12 month process) risk areas.

The process includes:

- Letter to Council providing indicative clearance date to allow adequate lead-in time eg allocation of budget or resources.
- Pre and post clearance survey with Council staff and a sample of residents/landowners.
- Offer to present to Council's Elected Members and key staff.
- Package of vegetation management material, including brochures, banner and website, to improve community awareness and understanding of our program and legislative requirements.
- Adverts on Council/SA Power Networks webpage and social media coverage.
- Council provision of information on possible trees for removal as part of clearance program.
- Provision of scoping data for Council review.
- Indicative timeframe – SA Power Networks will provide the indicative clearance program in January each year for that year.

SA Power Networks will undertake the following activities to engage with our stakeholders:

- Ongoing liaison and partnerships with Councils and stakeholders
- Pre and post clearance surveys
  Council survey
  - Pre clearance – meeting to discuss program, understand special/sensitive areas, stakeholder or environmental issues and any Council contribution to additional work
  - Post clearance – survey to understand level of satisfaction and areas for improvement

  Resident/landowner survey
  - Pre clearance – send letter and brochure to sample of residents to inform them of upcoming work and intention to seek feedback post clearance.
  - Post clearance – send feedback form and letter to same residents/landowners to understand their level of satisfaction and identify areas for improvement.

The survey will be available in hard copy or online at: sapowernetworks.com.au/trees-survey

- Developing partnerships with key organisations, eg educational and research institutions and government agencies, such as NRM Boards.
- Investigate working with schools and educational opportunities.
- Working with the Nursery industry Association and other industry bodies to identify opportunities for partnerships.
- Explore further opportunities for engaging with landholders and customers, including the use of negotiators to directly engage with residents/ landowners.
- Work with the CFS to improve community education/ awareness on fire mitigation.

3.4 Decision making

Management of customer issues

SA Power Networks has a Customer Charter that outlines our commitment to customers in relation to how we will provide our services, including requirements in relation to vegetation clearance, the obligations of property owners/ occupiers, our pre-summer bushfire mitigation preparations and property access requirements.

SA Power Networks values community feedback, which can be made via the following:

- General enquiries service – 13 12 61 (Mon–Fri 9.00am–5.00pm)
- Email – customerrelations@sapowernetworks.com.au
- Website – sapowernetworks.com.au/trees
- Mail – Customer Response
  SA Power Networks
  GPO Box 77
  Adelaide SA 5001

Consultation, notification, communication and decision continued

Dispute resolution
Disputes may arise from decisions made by SA Power Networks in carrying out our responsibilities to maintain safe clearances around powerlines.

Resolving customer grievances is important to SA Power Networks and we will endeavour to resolve any dispute with those affected in accordance with our Complaint Management Process.

SA Power Networks aims to respond to or acknowledge all complaints or enquiries within five business days via the most practical and time efficient medium, whether this be via written correspondence, email, telephone, or social media.

If you are not satisfied that SA Power Networks has satisfactorily resolved an issue, the matter can be referred to the Energy and Water Ombudsman of South Australia:

Energy and Water Ombudsman SA
Level 12, 50 Pirie Street
Adelaide SA 5000
GPO Box 2947
Adelaide SA 5001
Tel: 1800 665 565
Email: contact@ewosa.com.au
Website: www.ewosa.com.au

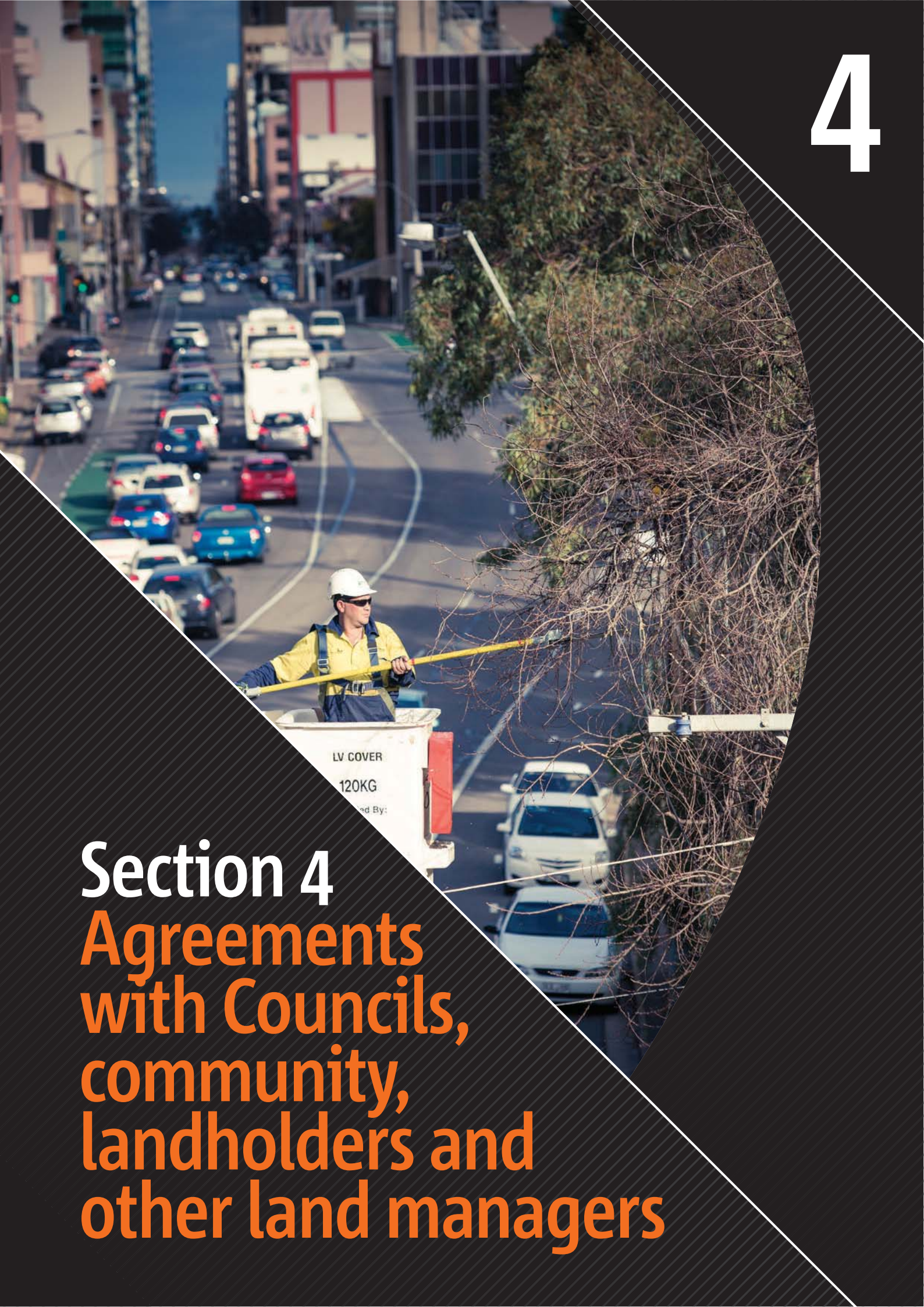
The Energy and Water Industry Ombudsman is an independent industry body and will act as a mediator between the customer and SA Power Networks. This service is free of charge.

3.5 Opportunities to improve how we engage with our customers

There are a number of opportunities to improve how we engage and work with our key stakeholders in regard to vegetation management.

These include, but are not limited to, the development of:
- Availability, in various formats, of improved community information and education materials.
- Closer engagement with key stakeholders and community representatives, including:
  - LGA Working Group
  - Local Government Forums
  - Pre and post clearance survey meetings
  - Presentations to Regional Council Groups
- Improved notification process including written notification, incorporating a contact person, and followed up with a face to face meeting.
- Partnerships with community and interest groups with a particular interest in vegetation management and wildlife management, including Trees for Life, Landcare, and wildlife groups.
- Opportunities to work with local schools on education programs or replanting programs.
- Opportunities to work with Councils and customers to ensure vegetation originating on their properties, encroaching into the street or over neighbour's fences, is managed and controlled by the customer.
- Online complaints email or customer service number for addressing vegetation management issues or concerns.

In addition, SA Power Networks will continue to work with the LGA Working Group and Independent Reference Group for Vegetation Management near Powerlines to enhance the overall quality and sustainability of vegetation management and implement key strategic initiatives.



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Section 4
Agreements with Councils, community, landholders and other land managers

Agreements with Councils, community, landholders and other land managers

Commitment to stakeholders:
We will seek direct advice in developing partnerships and opportunities for vegetation management improvements and seek your input into location or zone specific pruning programs

Working with Councils, landholders and other land managers to understand who is responsible for vegetation management, including pruning, tree removal and replacement, and species selection and the different roles they play, is fundamental to improving vegetation management near powerlines.

4.1 Interface between Council and SA Power Networks tree pruning and programs

There are a number of opportunities for improved coordination between Councils and SA Power Networks in relation to pruning activities and tree replacement/renewal programs.

Councils' Street Tree Management Plans

The majority of Councils have a Tree Management Framework, Policy or Plan in place to provide vision and direction for the management of trees within their Council area, including street trees.

Species selection and tree removals and replacement will need to align with Council endorsed management plans and improved alignment with our vegetation management objectives.

Pruning work

There are opportunities for Councils and SA Power Networks to work more collaboratively to improve vegetation clearance outcomes. These could include:

- Joint scoping to identify opportunities or alternatives to clearance.
- Additional pruning being undertaken by Councils following line clearance by SA Power Networks to achieve a better visual outcome.
- Formative pruning being undertaken by Council.

Street tree reviews

There are a number of Councils with ageing tree stocks and plans to replace these trees in the future, depending on life expectancy and other factors.

SA Power Networks and Councils should work together to identify aged trees, review and where possible align replacements with Councils' Tree Management Plans while supporting improved community outcomes and management of trees around powerlines. The aim should be to determine suitable replacement options over a one to 10-year timeframe.

Street renewal and replacement programs

A number of Councils undertake streetscape renewals, which involves replacing entire streets of trees, generally considered aged or inappropriate, with new species. There are opportunities for SA Power Networks and Councils to work together on replacement options and timeframes.

Management of culturally significant trees
SA Power Networks will consult with the relevant stakeholder prior to undertaking any pruning work on culturally significant trees. This includes:

- Native Vegetation Council – roadside vegetation of environmental significance or protected native vegetation.
- Local Council – heritage and national trust trees, culturally significant trees, avenues of honour.
- Local Council – significant trees (defined under the Development Act – metropolitan Adelaide).
- Local Council/DEWNR – trees that are particularly large, native to the area and/or significant.
- National Trust of SA – maintain a Register of Significant Trees to help identify and conserve trees of importance, including trees with historic or cultural value, environmental or botanical significance and avenues of honour.

4.2 Responsibilities/allocation of costs

In South Australia, SA Power Networks accepts the costs and liabilities associated with vegetation clearance in bushfire and non-bushfire risk areas and on private or public lands, in accordance with the Electricity Act 1996 and the Electricity (Principles of Vegetation Clearance) Regulations.

SA Power Networks currently undertakes a program of vegetation clearance in bushfire and non-bushfire risk areas. This program is funded to comply with our legislative obligations.

The protocol outlines the baseline programs for vegetation management for which funding is approved (ie. what we do now). While additional funding was sought for a number of vegetation management initiatives through our Regulatory Reset Proposal for 2015-2020, for example, a shift to a two- year cycle in selected non-bushfire risk areas and implementation of a tree removal and replacement program in bushfire and non-bushfire risk areas, approval for funding was not provided by the AER to implement these programs. While funding was not secured, SA Power Networks remains committed to working with stakeholders to develop a more sustainable approach and it is proposed that part of the vegetation management budget in future will include an amount allocated for strategic initiatives to drive long-term benefit to the business and reduce our clearance costs.

SA Power Networks would support proposals from Councils to introduce a different pruning regime or tree treatment as long as it meets our legislative and risk obligations, or for which funding is provided. Furthermore, under current legislation Councils have the option to contribute to additional programs or to take over trimming in their Council area (with the associated liability).

If an individual Council requires specific approaches that are above the baseline SA Power Networks programs, Councils will need to contribute funding for their specific programs/approaches. The additional programs could be based on either a trade-off within a Council area or funded by Councils. For example, to reduce clearance costs within a Council area, Council might opt for removals in one location for more advanced pruning or additional pruning in another area.

4.3 Opportunities for partnerships with Councils

There are a number of opportunities for partnerships with Local Government. Councils are responsible for managing street trees under their control to improve streetscape value and appeal and enhance biodiversity and habitat value. A large number of Council's have Tree Management Policies and Plans in place to protect their street trees and provide a framework for their management.

SA Power Networks is also keen to work with Councils to develop location and species specific pruning programs. For example, Council might nominate different zones within its Council area where different pruning regimes and strategies could apply. SA Power Networks and the LGA would need to liaise with Councils on their concept of zones for different pruning regimes and strategies. There are also opportunities for Councils and SA Power Networks to develop cost-effective solutions to reduce clearance costs.

SA Power Networks has developed a proposed consultation approach for how we will engage with Councils in bushfire (six month process) and non-bushfire (12 month process) risk areas, with a key objective being to provide adequate lead-in time for Councils to allocate funding and liaise with SA Power Networks regarding alternatives to clearance or alternative approaches to vegetation clearance in their Council area. Early and ongoing consultation will also enable Council to provide a list of possible trees for consideration for removal/replacement as part of the clearance program and allocate budget or resources to develop partnerships.

The following table provides some examples of different zones where different regimes and strategies could apply.

Some specific opportunities for partnerships with Council include:

- Developing partnerships to investigate alternatives to pruning such as tree removal and replacement, asset modification or implementing spacers.
- Data sharing opportunities between Councils and SA Power Networks, including scoping data, GIS information on street trees or native vegetation.
- Undertaking joint scoping with Councils to improve vegetation management outcomes.
- Developing location and species specific pruning programs in partnership with individual Councils.
- Opportunities for trade-offs within a Council area and developing detailed work plans for individual Council areas in consultation with Council.

Agreements with Councils, community, landholders and other land managers continued

Table: Different zones for different pruning regimes

Notice	Possible strategies
Zone A - Low rainfall and limited trees eg Ceduna, Roxby Downs	• Shifting from a 3-year cycle to a 5-year cycle • Tree removal and replacement – arid appropriate species
Zone B – High rainfall eg Mount Lofty Ranges (Stirling, Gumeracha)	• More frequent tree trimming • Tree removal/replacement • Span by span strategies eg multiple cutting on targeted spans • Growth retardants • Species specific removal programs eg fast growing species • Woody weed removal programs • Species specific pruning techniques • Sapling removal
Zone C – Rural townships eg Cummins, Melrose	• More frequent tree trimming • Tree removal/replacement • Species specific pruning techniques • Sapling removal • Individual tree removal and replacement • Street tree renewals • Asset modification eg insulating the powerlines, undergrounding
Zone D - Agricultural areas eg Yorke Peninsula, Mid North, South East	• Tree removal/replacement • Woody weed removal programs • Sapling removal
Zone E - High amenity areas (tourist/historical precincts, high traffic areas, main streets and shopping centres, near schools or community centres) eg Hahndorf, Glenelg, Port Elliot, Clare, McLaren Vale	• Staged removal/replacements • More frequent tree trimming • More advanced horticultural techniques • Species specific pruning techniques • Individual tree removal and replacement • Street tree renewals • Asset modification eg insulating the powerlines, undergrounding
Zone F - Metropolitan area (prescribed area)	• More frequent tree trimming • Staged removal/replacements • More advanced horticultural techniques • Other pruning techniques eg formative pruning • Woody weed removal programs eg Olives, Pines • Species specific pruning techniques • Sapling removal • Individual tree removal and replacement • Street tree renewals • Asset modification eg insulating the powerlines, undergrounding
Zone G – Natural/environmentally sensitive areas eg protected areas, environmentally sensitive areas, RMS sites	• Sapling removal – non-naturally occurring • Woody weed removal • More advanced horticultural techniques
Zone H - Low visibility areas eg areas where tree removals relatively easy to implement or woody weeds, industrial areas, rural areas, low traffic areas	• Tree removal/replacement • Sapling removal • 3-year cycle (compliance vs amenity)
Zone I - No Tree Zone, areas where there is significant service utility infrastructure (water pipeline, gas pipeline, sub transmission (66kV) and transmission (132kV and 275kV) powerlines exist) eg areas where trees should not be replanted if trees are removed	• Tree removal • Shifting from a 3-year cycle to a 5-year cycle

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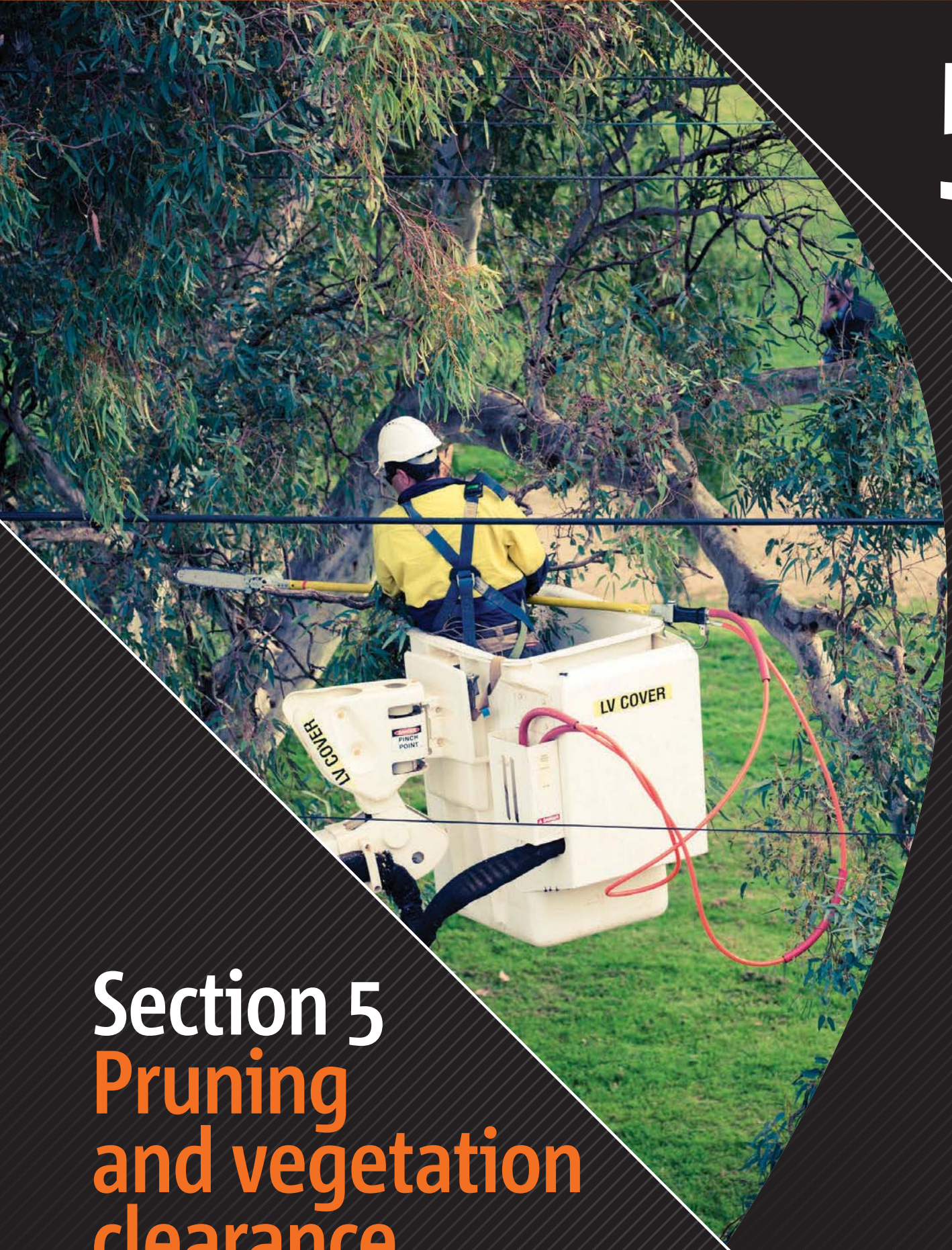


Section 5
Pruning and vegetation clearance

Pruning and vegetation clearance

Commitment to stakeholders:
We will aim to keep you informed, listen and acknowledge concerns and provide feedback on how your issues and concerns have influenced the decision or process

5.1 SA Power Networks vegetation clearance program

The SA Power Networks vegetation clearance program consists of the following programs to manage vegetation near powerlines:

- Annual cyclic program in high bushfire risk areas and risk-based approach in medium bushfire risk areas (approximately 430,000 line spans across the state).
- Pre-fire danger season program in high bushfire risk areas – repatrol all spans that were inspected as part of the annual cyclic program prior to 1 May in that year.
- Three-year cyclic program in non-bushfire risk areas
- Metropolitan Council program – three-year cyclic program.
- Metropolitan 33kV/66kV Pre Fire Danger Season Program – preventative maintenance program on high voltage feeders.

5.2 Scoping

The vegetation services contractors are responsible for undertaking the inspection of feeders for the purpose of scoping annual, cyclic and pre-summer cutting programs. Inspection is done using a 4WD vehicle to traverse the line, checking every span for potential and existing vegetation infringements. The required clearance under the Act (Section 6) is then determined for the cutting crew.

SA Power Networks is responsible for liaising with Council pre-inspection to gain their input into the scoping process. This allows Councils to provide information on:

- Trees suitable for removal.
- Culturally sensitive trees.
- Opportunities for integration with Council or other agency (eg DPTI, developers) pruning work.
- Stakeholder/community issues or concerns.
- Council inspect trees for consideration of options.
- Trees under stress eg health, old age, decay, disease
- High amenity areas.

SA Power Networks will:

- Provide Councils with 30 days notice of their intent to scope.
- Provide Councils the scoping data 30 days prior to cutting to allow Council review, consultation and identification of alternatives. A template outlining the scoping data to be provided to Councils to enable Councils to review the data within the 30 day period will be developed.
- SA Power Networks will aim to develop an indicative schedule for the metropolitan and non-bushfire risk areas clearance program to provide advanced notice of when tree trimming is likely to occur in Council areas.
- Meet with Council on-site to discuss the proposed program following the provision of cutting data and prior to the commencement of tree trimming.

5.3 Pruning techniques

Pruning is the directed and purposeful cutting of a plant towards a pre-determined end, that in the case of the SA Power Networks vegetation clearance program is to prune the branches of trees which do or may interfere with powerlines, in accordance with the legislation.

A number of specific issues have been identified by Local Government in relation to pruning, including:

- Pruning needs to be more species and location specific.
- Native vegetation management – requires different pruning approach.
- One size fits all approach but different species have different regrowth and other factors need to be considered eg rainfall, weather.
- Provide information on the extent of pruning to be undertaken per tree.

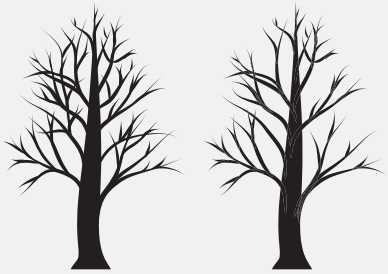
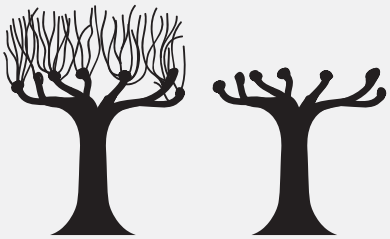
It should be noted that improvement in these areas requires additional data being captured. There is a range of data that needs to be collected at the line span level to enable effective strategic planning and improve future optimisation of the program. SA Power Networks is working to improve its data capture to improve our understanding of different species, growth rates and regional differences.

The table on page 30 and 31 outlines the different pruning techniques and their application for managing vegetation near powerlines.

The definitions for the pruning techniques have largely been sourced from the Australian Standard AS 4373 for the Pruning of Amenity Trees. Line clearance is defined as pruning to maintain clearances around overhead services, such as powerlines, which should involve formative pruning, reduction pruning or remedial pruning.

Pruning and vegetation clearance continued

Pruning Technique	Description of pruning technique	Application of technique	Illustration of pruning techniques
Formative pruning	Formative pruning consists of the selective removal of specific branches to enhance form and improve structure, or to directionally shape the young tree. One of the aims of formative pruning is to accommodate site constraints and reduce encroachment on powerlines as the tree grows. Future conflicts between vegetation and electricity infrastructure can be reduced by ensuring vegetation planted on Council controlled land is appropriately selected and formatively pruned during development.	SA Power Networks is looking for Councils to undertake formative pruning to shape trees or improve the visual aesthetics of trees over time. Formative pruning techniques should generally be used for Council street trees to reduce conflict with powerlines over time.	
Selective pruning	Selective pruning is the removal of identified branches that are causing a specific problem.	Selective pruning aims to reduce the height of the tree and maintain the required clearance zone.	
Directional pruning	Directional pruning involves removing limbs growing into the powerlines and encouraging growth away from the powerlines. Directional pruning leaves trees healthier and ultimately reduces clearance costs over the long-term.	Whilst directional pruning may not always improve the trees appearance it is the preferred method for managing trees near powerlines.	

Pruning Technique	Description of pruning technique	Application of technique	Illustration of pruning techniques
Reduction pruning	Reduction pruning reduces the size of the crown of the tree in the height or spread. The ends of the branches are removed to internal lateral branches or stems.		 Before After
Pollarding	A pruning technique that establishes branches ending in a pollard head of buds and vigorous shoots.		 Before After
Tree removal	If the degree of pruning required is such that a satisfactory appearance cannot be maintained, then it may be preferable to remove the tree.	Under the current legislation there are no provisions for tree removal for visual, health or safety reasons. SA Power Networks relies on working with Councils and landholders.	

5.4 Pruning cycles

The frequency of tree trimming varies among Council areas, and even within Council areas, depending on the line voltage and area/zone (ie bushfire or non-bushfire risk areas).

Bushfire risk areas

SA Power Networks undertakes an annual cycle of inspection and cutting in high bushfire risk areas and a risk-based approach in medium bushfire risk areas.

Non-bushfire risk areas

SA Power Networks currently undertakes a three-year cycle in non-bushfire risk areas. Community engagement has indicated that a change to the trimming frequency would reduce the negative impact to the trees as a less severe cut would be required. Subject to funding, SA Power Networks proposes to move to a two-year trimming cycle in selected non-bushfire risk areas.

5.5 Species and specimen specific guidelines

Pruning should also consider a number of species and specimen specific constraints, including but not limited to:

- Location (Council)
- Species (tree types)
- Social (stakeholders/community)
- Importance of local knowledge and training

5.6 Timing and scheduling

Timing

- Timing of pruning needs to consider a range of factors including weather, species, environmental indicators (nesting times of birds), flowering and access to area.
- Greater lead in times – 30 days is provided to Councils between notification and pruning. Where considered warranted by SA Power Networks, a 30 day extension can be requested, to allow more time to review the pruning schedule. For example, to meet Council meeting dates.

Timing and type of pruning

Different trees have different optimum times for pruning. For example:

- Deciduous trees should be pruned when they are leafless as the branches are more easily seen and the direction of regrowth can be planned.
- Evergreen trees should be pruned after flowering or bearing fruit, but can generally be cut at any time.
- Conifers can be pruned at any time but excessively heavy pruning will expose their limbs.

If the degree of pruning required is such that a satisfactory appearance cannot be maintained, then it may be preferable to remove the tree.

Scheduling

Clearance work should be scheduled to minimise impacts to landholders, Councils and the community. Scheduling needs to also consider environmental factors, such as wildlife breeding seasons.

There are a number of factors that need to be considered when scheduling clearance work, with the size and nature of the street being the key determinants. Some of the specific issues that need to be considered are outlined in the following table.

	Proposed approach
Schools	Where possible cutting will be avoided during the following times: • School drop-off and pick-up hours (between 8.15-9.00am and 3.00-3.45pm). • Not during the first week of school term. Cutting will be scheduled during School Holidays where possible to minimise disruptions.
Community events	Clearance work will be scheduled to avoid or minimise disruption to community events where possible. Events organisers should contact SA Power Networks' to inform them of dates. • General enquiries service – 13 12 61 (Mon – Fri 9am-5pm) • Email – customerrelations@sapowernetworks.com.au
Special event clearance	Clearance works will be undertaken as required prior to major events to minimise the risk of outages eg. Royal Adelaide Show

5.7 Site management

Traffic control and costs

Appropriate traffic management must be put in place by the contractor prior to vegetation clearance work being undertaken.

All traffic management must adhere to the Road Traffic Act, Regulations, Codes of Practice and Australian Standards.

Safe work zones

The contractor is required to provide a safe work zone prior to clearance works being undertaken.

Native vegetation management

SA Power Networks is exempt under the Native Vegetation Act 1993 from tree trimming and maintenance work and for clearance work undertaken in accordance with the Electricity Act 1996.

SA Power Networks will seek to minimise damage to native vegetation. SA Power Networks will work with the Native Vegetation Council to develop guidelines for tree removal and replacement and investigate developing a Standard Operating Procedure to meet our requirements for vegetation clearance.

The contractor needs to consider when vehicle access is or is not inappropriate to a site to protect and minimise damage to native vegetation. Councils have a role to play in identifying and flagging environmentally sensitive areas.

The Roadside Marker System (RMS) has been developed to protect native vegetation occurring on road reserves. Councils are involved on a voluntary basis and a simple uniform standard for marking sites of natural, historic or cultural significance has been developed to help Council, other agencies and contractors to manage roadside vegetation. SA Power Networks will ensure these sites are managed appropriately in accordance with the mitigation measures identified for the site.

Site debris/clean-up

Contractors leaving site debris is frustrating for residents and prompts complaints to Councils, as well as SA Power Networks.

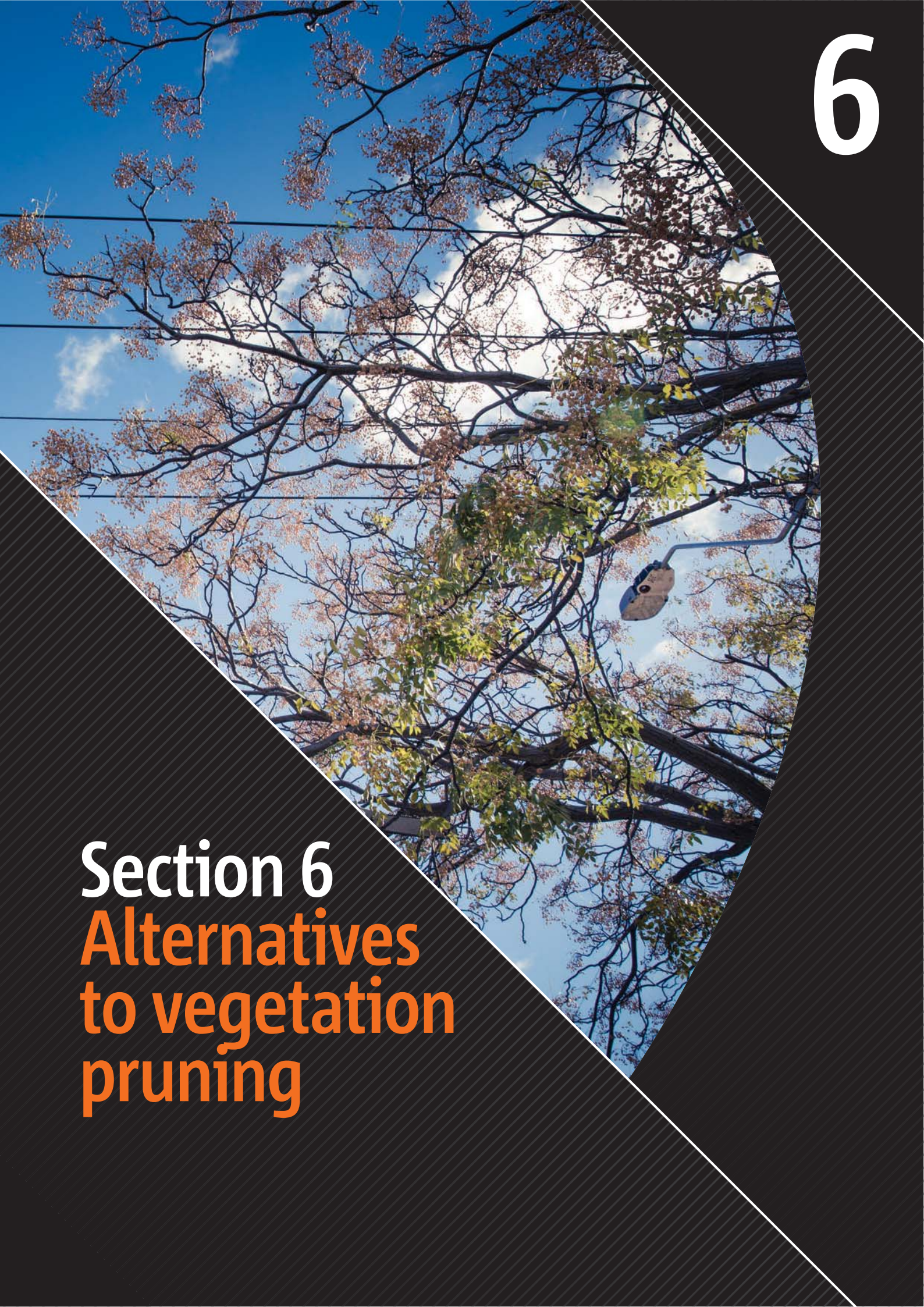
Vegetation debris may either be left in rural situations (following agreement with the landholder or Council), where it will not pose a bushfire, safety or environmental risk, to decompose naturally or mulched in other situations.

Where requested by the landholder, the mulch generated may be left on site to stabilise the site.

5.8 Opportunities for improvement in pruning and vegetation clearance

There are a number of opportunities to improve the current vegetation clearance program and how we work with Councils and landholders. This could include:

- Opportunities for joint scoping with Councils or involving Councils during scoping stage.
- Increased lead in time between scoping and pruning.
- Better documentation of scoping data and more detail.
- Part of scoping for contractor should require them to consider the health of the tree and contact Council prior to works if health if likely to be affected.
- Council provision of possible trees for removal as part of clearance program.
- Pre and post clearance survey with Council and resident/ landowners to improve our clearance outcomes.
- Provide feedback to our vegetation clearance contractor on the survey results eg. native vegetation management, site clean-up and contractor behaviour to identify areas for improvement and training needs.
- Recognising the importance of local knowledge and reflecting this in contractor training.



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Section 6
Alternatives to vegetation pruning

Alternatives to vegetation pruning

Commitment to stakeholders: We will seek direct advice in developing partnerships and opportunities for vegetation management improvements and seek your input into location or zone specific pruning programs

While pruning is the most common method of maintaining clearance between powerlines ad vegetation, there are a range of alternative methods that can be considered by Councils and SA Power Networks to manage vegetation near powerlines.

SA Power Networks has developed a long-term plan for vegetation management that outlines a range of initiatives as alternatives to vegetation clearance to reduce our clearance requirements. The following section provides an overview of the initiatives that SA Power Networks is keen to develop in partnership with Councils to reduce clearance requirements.

One of the principles of our long-term plan is sustainability, including tree removal, planting appropriate trees and creating an overall positive net impact on the environment. Determining the value of the tree(s) and an appropriate approach (removal, pruning or asset modification) will be a key part of our long-term plan.

While additional funding was sought for a number of vegetation management initiatives through our Regulatory Reset Proposal for 2015-2020, specific additional initiatives were not approved for funding by the AER. The initiatives proposed were supported through community consultation and, as such, SA Power Networks remains committed to working with stakeholders to develop a more sustainable approach and to implement initiatives where they can be proven to be cost effective.

6.1 Vegetation management initiatives

Tree Removal

Tree removal programs are critical to developing a sustainable vegetation management plan that reduces the need for tree trimming over time. The removal of inappropriate, fast growing or large trees in consultation with Local Government and the community is one alternative to the current cutting practices to achieve clearance near powerlines and, in many instances, is the preferred management approach by SA Power Networks. There is also growing support from Councils and the community that this approach is preferable to excessive and ongoing cutting.

SA Power Networks is keen to develop a tree removal and replacement program as part of its vegetation clearance program, including span clearances, fast growing species, weed removal and sapling removal. Tree removals reduce ongoing clearance costs with payback estimated at between two and seven years depending on location, types of trees and cutting clearance requirements. Tree removal also provides a long-term economic benefit to consumers and avoids the continual pruning of trees that require ongoing clearance. Tree removal programs also provide the opportunity to collaborate with our key stakeholders and develop partnerships with Councils to provide joint benefits to the community.

A tree removal program would target inappropriate trees in high bushfire risk areas. In addition, a program would target areas with high non-conformance rates (ie. Stirling, Mt Barker and St Mary's), high rainfall areas and areas with a high prevalence of fast growing species (ie. Ash trees).

While the focus of a tree removal program would be in bushfire risk areas, tree removals would also be investigated in metropolitan Council areas (non-bushfire risk areas), however this is likely to be on a tree by tree basis, rather than on the span by span basis used in the bushfire risk areas.

Guidelines will be developed to provide parameters for what is defined as an 'inappropriate tree' for removal. This is likely to include consideration of fast growing species, weed trees, areas difficult to access for pruning, self-seeding saplings or unstable trees. SA Power Networks is investigating the use of negotiators to liaise directly with landowners and residents on inappropriate trees for removal.

SA Power Networks is liaising with the Native Vegetation Council regarding options to offset the removal of native vegetation as part of our proposed tree removal and replacement program.

Tree removal trials

In 2014 and 2015, SA Power Networks undertook a number of tree removal trials in partnership with Council and key stakeholders. In summary, the trials included:

- **Riverton, March 2014** – the removal of 14 trees at the entrance to Riverton and the replacement with more appropriate species. While the trial was undertaken within the township of Riverton, the site was located in a bushfire risk area and annual cutting was required to meet clearances.
- **Echunga, June 2014** – partnership between SA Power Networks, the District Council of Mount Barker and Adelaide and Mount Lofty Ranges NRM Board to clear 28 spans at four locations. Community consultation undertaken jointly by SA Power Networks and Council.
- **Daw Ave, Mount Barker, December 2014** – the removal and replacement of 12 Ash trees in a residential street in Mount Barker in partnerships with the District Council of Mount Barker.
- **Johnson Rd, One Tree Hill, May 2015** – cleared eight spans of a mix of Olives, Figs and planted Eucalypts along Johnson Rd. The trial was in a high bushfire risk area and was a partnership with the City of Playford and Natural Resources Adelaide and Mount Lofty Ranges.

The trials have shown the value of tree removal and replacement programs in both bushfire and non-bushfire risk areas. The trails targeted inappropriate trees that required ongoing clearance and all the trials have been supported by the local Council and residents.

Consultation prior to removal alleviated customer and landowner concerns regarding removal and in a number of instances resulted in an increase in scope with additional trees being removed.

It is our expectation that Council will contribute some funding, either through direct contribution or the removal of stumps as part of a partnership approach. In addition, Councils have a role to play as part of the community engagement process. It is understood that the ability for Councils to contribute funding will vary between Councils, particularly rural Councils with large geographic areas and low population densities.

Removal and Replacement with appropriate species

While SA Power Networks is keen to remove inappropriate trees, the development of a replacement program where appropriate will provide ongoing environmental benefits. In some instances tree removal will not result in tree replacement, however in many cases trees removed will be replaced with more appropriate species (ie. smaller or slower growing trees). The replacement need not be in the same location and replacement in a negotiated alternative location will be considered in the same Council area, in consultation with the Council.

The replacement of trees will be undertaken with the following priority:

- Trees replaced in the same location but with a more appropriate species for growing under powerlines.
- Trees replaced in the same Local Government Council area or Natural Resource Management Region (NRM), in consultation with Council's Biodiversity Officer(s).
- A financial contribution is provided to Trees for Life, the Nature Foundation of SA or a grants program for replanting, subject to discussions with the Native Vegetation Council.

The removal of large trees and the replacement with suitable, smaller trees was identified as an area of concern by Councils in terms of the streetscape and amenity value, given the value larger trees play in the urban environment. One option would be to provide exemptions for Council to replant large trees removed with a similar species on the condition that Councils undertake formative pruning to shape trees and alleviate future clearance requirements. SA Power Networks would enter into agreements with Councils for them to undertake formative pruning for an initial one to three year period.

Alternatives to vegetation pruning

Sapling removal
A sapling removal program is a preventative program aimed at reducing cutting requirements over time. The cost of sapling removal is significantly less than the cost of repeatedly trimming or removing a mature tree, so a program targeting the removal of saplings (ie. inappropriate species or self-seeded) within the vegetation clearance easement before they mature and become a management issue is proposed.

The target for the sapling removal program is naturally occurring vegetation, pest plants, self-seeded saplings and inappropriate trees. Following removal, the spans cleared would sprayed to avoid regrowth (where appropriate).

The removal of saplings requires consultation and approval from Councils or private landholders as this is not currently allowed under the Regulations.

Species specific removal programs eg fast growing species
There are a number of Councils, particularly Councils with high average rainfall and fast growing species, where it is necessary to cut trees multiple times in a year to meet legislative clearance requirements. In these situations tree removal would be the most appropriate (and sustainable) approach from a cost benefit perspective.

Staged renewal program
To minimise visual impacts associated with tree removal, opportunities for staged removal and renewal will be investigated to decrease impact, protect habitat and manage community concerns. For example, a three, five or seven-year replacement/renewal program could be implemented in partnership with Council along a particular feeder or area.

Individual tree removal and replacement
In some instances, such as established avenues of trees or ceremonial trees, maintaining trees and species is a more appropriate approach to manage community expectations and streetscape values. In such situations, individual trees would be removed and replaced by Councils to maintain these established avenues. An alternative in these situations is to insulate the lines to reduce the clearance requirements.

Replacement in such situations would be on a case by case basis and SA Power Networks would work with Councils to negotiate an acceptable outcome in terms of replacement and future maintenance.

Growth management
The use of a growth management system to inhibit regrowth can be an effective management tool in some circumstances.

SA Power Networks is undertaking a Tree Growth Management Trial of 100 trees in the City of Campbelltown to understand the use of growth retardants in reducing tree growth and clearance costs and the potential of extending pruning cycles.

The trial involves Cambistat (active ingredient Palcobutrazol) used widely in the horticultural industry. Cambistat is formulated as a suspension concentrate mixed with water and is applied as a sub-surface basal application by soil injection or basal drench. The material is absorbed by the root system and is transported to the crown of the tree where it inhibits the production of the growth hormone largely responsible for shoot elongation.

Overseas evidence shows Cambistat reduces cell elongation and enlargement so the cell structures and plant parts remain intact but are smaller and shorter. This reduces branch elongation and the biomass of the tree, therefore reducing clearance requirements. As a side benefit, the use of Cambistat in the United States has been found to improve the health and vigour of trees and also improves their tolerance to drought and disease.

The results of the trial within the City of Campbelltown will be assessed following completion of the trial in mid 2017 and further work to understand the effectiveness of the tool and selection of appropriate sites for application will be undertaken in consultation with Councils and other appropriate stakeholders.

More advanced tree trimming practices
SA Power Networks would support proposals from Councils to introduce a different pruning regime or more advanced pruning techniques as long as it meets our legislative and risk obligations. SA Power Networks would be happy to work with Councils who are interested in funding the additional cost of undertaking additional pruning to shape trees to improve their visual aesthetics. Such a trial would provide valuable data on the time and cost impact of using these tree trimming practices, consider their ability to maintain compliance with the Regulations and the long-term benefits in terms of tree health, amenity, stability and customer response.

6.2 Relocating electricity assets

There are a number of options available to manage vegetation near powerlines that do not require vegetation clearance.

Undergrounding

The undergrounding of overhead powerlines is one strategy to manage vegetation clearance and improve visual amenity. While undergrounding is supported as an option it is an expensive solution to manage vegetation and would only be considered in certain areas, including high amenity and tourist areas or streetscapes, heritage and coastal areas, high bushfire risk areas and road safety hot spots.

The PLEC program will be maintained and SA Power Networks will continue to work with Councils on priority projects suitable for PLEC funding.

SA Power Networks is developing an undergrounding plan for 2015-2020 that includes:

- Maintaining the current $9.5m per annum Powerline Environment Committee (PLEC) program.
- Undergrounding and or insulation, reconfiguration or re-routing of some powerlines in bushfire risk areas that provide cost efficient outcomes.

There are also opportunities for consumers to pay for infrastructure options that protect trees and therefore the need to build in possible community contribution to the consultation process when considering vegetation management options.

Asset modification

Where vegetation is identified as having significant public amenity/historical/streetscape value it may be decided to modify the electrical asset rather than cut or remove the vegetation. In some locations this is the preferred approach to manage vegetation where we are unable to cut or where it is more cost effective to undertake work on the asset than cut. This could include:

- Installation of insulating powerlines, eg Aerial Bundled Cables (ABC).
- Relocation of powerlines.

At some locations, rebuilding a section of the asset with insulated conductors will either eliminate or significantly reduce the vegetation clearance required and therefore the cost of vegetation clearance.

SA Power Networks has a current budget of approximately $150,000 in $2013, based on an average cost of $6,500 per line clearance rectification, for asset rebuilds required as a result of vegetation issues.

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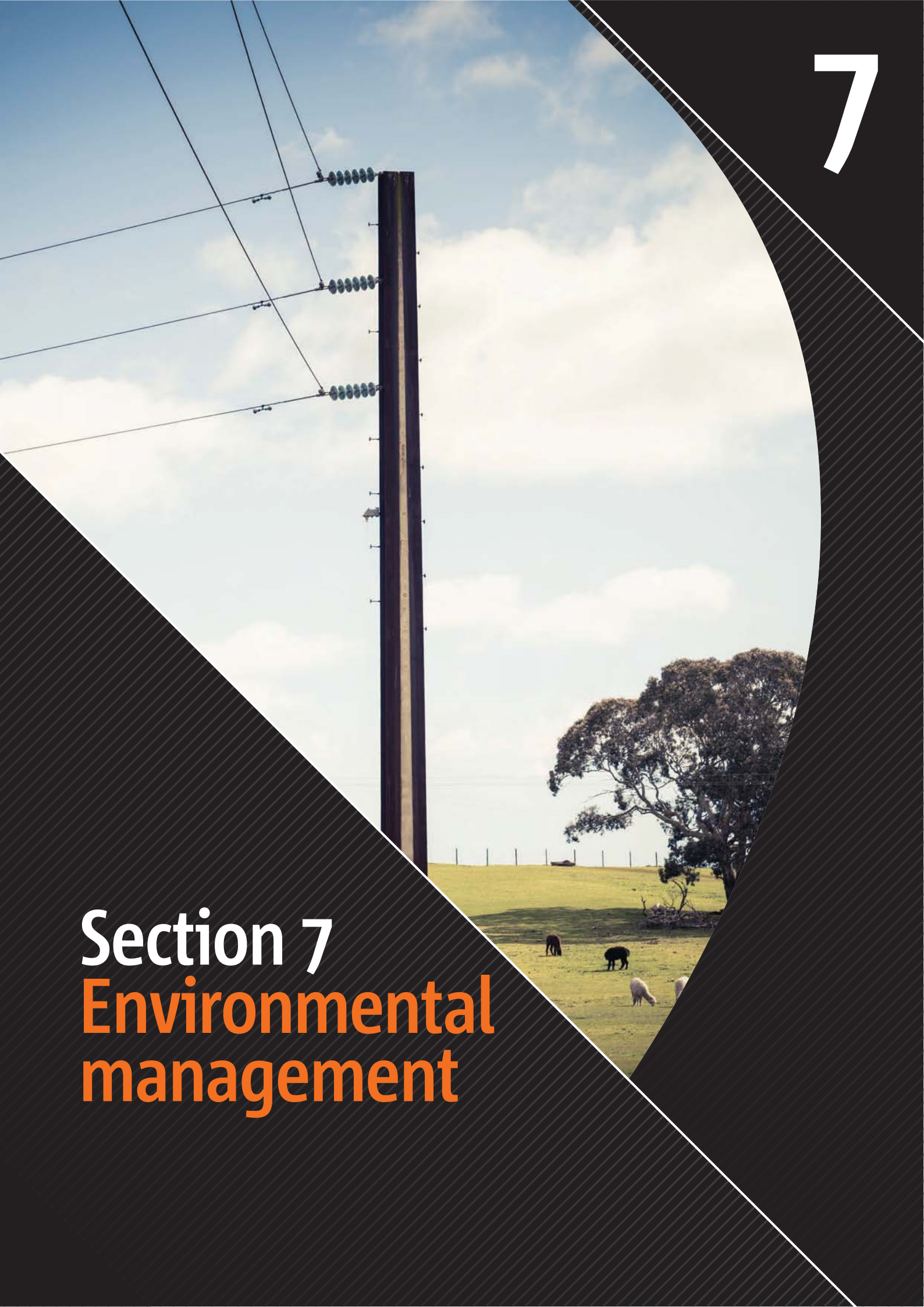

Section 7
Environmental management

Environmental Management

Commitment to stakeholders: We will keep you informed of our environmental obligations and requirements

SA Power Networks is committed to conducting its electricity distribution operations and business activities in a manner that prevents or minimises adverse impacts on the environment.

We also monitor stakeholder and community values to ensure that our environmental management systems and initiatives are consistent with the expectations of the community, policy makers and stakeholders.

SA Power Networks has in place a comprehensive structure to manage its impact on the environment. To ensure our environmental management objectives are met, we maintain a robust Environmental Management System (EMS), inclusive of an annual Environmental Management Plan. The plan is a key part of the system and provides direction for SA Power Networks' managers and employees in delivering the intent of our Environmental Policy.

The Environmental Management System (EMS) provides guidance and procedures on the implementation and management of environmental Aspects and Impacts.

In relation to vegetation clearance activities, this includes:

- Biosecurity – preventing the spread of plant and animal disease and pest plants
- Management of significant and regulated trees
- Sensitive and Protected Vegetation areas
- Cultural and European Heritage sites
- Protection of Flora and Fauna
- Erosion and Sediment control
- Waste management
- Noise mitigation.

SA Power Networks carries out vegetation management near powerlines in compliance with all applicable environmental legislation.

SA Power Networks will develop a Standard Operating Procedure (SOP) for vegetation clearance to provide guidance to employees and contractors associated with construction, maintenance and operational works on network assets.

The SOP will outline the requirement for vegetation clearance approvals and regulation compliance during construction works, operation and maintenance activities.

Activities associated with SA Power Network's vegetation management program are required to comply with state legislation. SA Power Networks has an Environmental Branch that monitors our environmental performance, provides advice on environmental issues and who ensure we meet our legislative requirements.

A summary of the aspects considered in the planning and implementation of the program is outlined below.

7.1 Biosecurity – Pest plants and plant and animal disease management

SA Power Networks has an obligation to prevent the introduction of weeds to new areas and the spread of existing weed infestations.

Declared plants (weeds) and plant diseases generally inhabit areas where disturbance is high, especially along easements and boundary fences.

To minimise impacts of pest plants and plant and animal diseases, SA Power Networks will identify the presence of pest plants and plant and animal diseases, quarantine areas and determine control measures prior to work activities.

Employees and Contractors will selectively and responsibly apply herbicides in compliance with the Agricultural and Veterinary Products (Control of Use) Act and Regulations (ie. residual herbicides in substations to prevent off target damage to vegetation).

7.2 Significant and regulated trees

The Development Act 1993 provides that any activity that damages a regulated/significant tree is 'development', and as such requires a development approval.

A significant tree is any regulated tree in metropolitan Adelaide and/or townships in the Adelaide Hills Council or parts of the Mount Barker Council with a combined total trunk circumference of 3.0m or more measured at a point 1.0m above the natural ground level. Local Councils have a register of all Significant Trees in their area and other trees may be identified as significant trees in the Development Plan of the City of Adelaide, City of Burnside, City of Prospect or City of Unley. A regulated tree is any tree in metropolitan Adelaide and/or townships in the Adelaide Hills Council or parts of the Mount Barker Council with a combined total trunk circumference of 2.0m or more measured at a point 1.0m above the natural ground level.

SA Power Networks is exempt under the Act for vegetation clearance work around powerlines but shall consult with Councils in the instance that pruning may constitute a 'Tree Damaging Activity'.

7.3 Sensitive and protected areas

Protected areas are sensitive areas that are covered by, and must be protected under legislation and/or Codes of Practice, including:

- Natural Refuges
- Conservation Areas
- Wilderness Areas
- National Parks and Nature Reserves
- Conservation Parks
- Declared Fish Habitat Areas
- State Forest, Timber Reserves or Land Act Reserves
- Key Coastal Sites declared under Regional Coastal Management Plans
- International Agreement Areas such as RAMSAR sites.

SA Power Networks shall identify areas of protected and significant habitat by considering local, state and federal government agencies, as well as local signage including significant roadside vegetation markers (RMS sites) and Bushcare sites and heritage listed areas prior to undertaking vegetation management activities work.

The Department of Planning, Transport and Infrastructure (DPTI) has roadside significant sites, most of which are protected by State or Commonwealth Legislation. All works in such areas will adhere to the provisions under the Electricity Act and Regulations.

7.4 Cultural and European heritage sites

Operational activities have the potential to affect Aboriginal and European Heritage artefacts and significant sites. Aboriginal Heritage features can include rock art, scarred and carved trees, native trees, shell middens and stone artefact scatters to burial or ceremonial grounds.

European heritage may include designated natural heritage eg. vegetation or single trees and historic buildings.

The assessment and management of risk in regards to indigenous cultural heritage are performed in accordance with the requirements of the Aboriginal Heritage Act 1988. Notification of traditional owners and native title claimants is required if ground disturbance works are to take place in areas of known cultural heritage. Under this Act it is illegal to harm, excavate, relocate, take away or be in possession of indigenous cultural heritage.

If SA Power Networks or contractors find items that could be cultural or European heritage there are strict stop work and discovery notification protocols that must be adhered to.

7.5 Fauna management

Vegetation Management activities will be undertaken with consideration given to fauna (native animal) habitat and the maintenance of their biodiversity (fauna type and number). Impacts on domesticated farm animals (livestock) will also be considered. While most animals will move away as a result of the presence of people or equipment in the area, some native animals such as koalas, possums and some nesting birds may remain and are protected.

Vegetation clearance has the potential to impact on fauna by disturbing habitat (the environment it lives in). For large protected and or threatened bird species, such as Wedge Tailed Eagles and Sea Eagles, SA Power Networks will endeavour to avoid undertaking these activities during critical breeding times of the year.

Inspection of areas will be undertaken to ensure fauna is not present or will not be harmed as a result of planned works and where necessary, seek to relocate fauna.

7.6 Soil erosion and sediment control

Vehicular movements along easements and access tracks have the potential to cause soil disturbance, which can result in erosion of soils by wind or water. Removal of vegetation can also lead to soil disturbance. This in turn leads to sediment loss in resultant run-off water that may impinge on the environment. Sediment contaminated run-off water entering a watercourse is illegal under the Environment Protection (Water Quality) Policy 2003.

Exposed soil has the potential to erode and care shall be taken to minimise the impact and where possible low growing species will be retained to stabilise the site. To minimise the impacts on soils SA Power Networks employees and contractors will ensure that vehicle, plant and equipment movements are confined to the easement or access tracks unless absolutely necessary and after prior consultation with the property owner/manager, local council or state or federal government agencies.

7.7 Waste management

SA Power Networks has robust waste management systems and recycling processes in place to reduce the proportion of material going to landfill and wherever possible re-use and recycle.

All waste generated from vegetation management works including vegetation debris, herbicide containers etc. shall be recycled wherever possible. Vegetation debris may either be left in rural situations (subject to landholder/ Council agreement), where it will not pose a safety risk, to decompose naturally or mulched in other situations.

Where requested by the landholder, the mulch generated may be left on site to stabilise the site.

7.8 Noise mitigation

The Environment Protection Authority (EPA) regulates the maximum allowable noise levels for commercial and industrial activities in residential and regional areas across the state. This is undertaken in conjunction with local councils.

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

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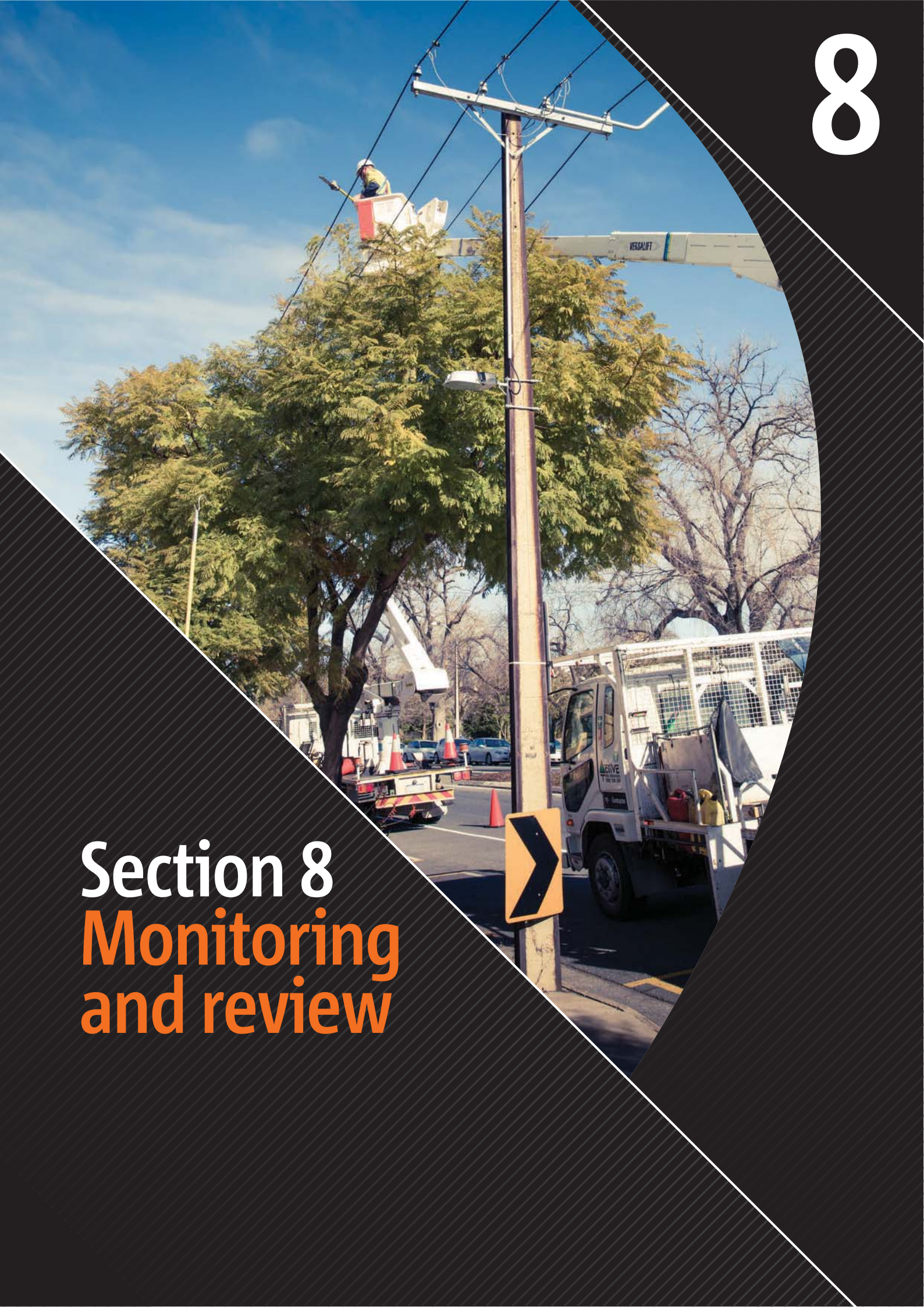

Section 8
Monitoring and review

Monitoring and Review

Commitment to stakeholders:
We will keep you informed, listen and acknowledge concerns and provide feedback on how your issues and concerns have influenced the decision or process

8.1 Independent monitoring and arbitration

The Energy Industry Ombudsman of South Australia is an independent industry body and will act as a mediator between the customer and SA Power Networks, if required.

In addition, SA Power Networks has established a Reference Group for Vegetation Management near Powerlines to provide expert and independent arboriculture and horticultural input into the development of SA Power Networks' long-term vegetation management strategy. The group is represented by TreeNet, the Botanic Gardens of South Australia, Arboriculture Australia, Trees for Life, the South Australia Tree Advisory Board and Local Government, as well as expert individuals and a community/landholder representative. There is an opportunity for the role of this group to be expanded to provide independent advice or arbitration on vegetation management issues or disputes as required.

8.2 Contractor management

When complaints regarding contractor behaviour are reported to SA Power Networks these are followed up with the contractor (ie. leaving area untidy, property damage and access).

The contract for vegetation clearance details a number of specifications that the contractor needs to comply with. These include the requirement to prepare and lodge regular reports with SA Power Networks, including information on the cutting program and customer complaints. SA Power Networks also meets on a monthly basis (as a minimum) with the contractor to discuss the program and any particular issues.

Customer liaison

The vegetation contractor currently communicates and liaises with the public as part of the clearance work.

Skill levels for vegetation clearance staff and contractors

Councils and stakeholders have raised concerns regarding the quality of pruning and the minimum skill level required by contractors. There is a desire for vegetation clearance contractors to undertake pruning methods to a higher arboriculture standard.

To undertake vegetation clearance, cutting contractor are required to hold (or be obtaining) a Certificate Level II (as a minimum) in ESI Vegetation Control.

Under the new contract, all scopers are required to be working toward the achievement of a Certificate Level III (as a minimum) in Arboriculture or Horticulture within 12 months.

Training requirements
The Vegetation Clearance contract outlines a number of compulsory training requirements for our vegetation clearance contractor, including:

- All personnel engaged on SA Power Networks vegetation clearance programs have been trained and accredited to a minimum standard to work safely around overhead energised powerlines and clear vegetation to an acceptable industry standard and technique.
- The Contractor is required to maintain a register of the training and accreditation completed by each of their Personnel, along with expiry and reaccreditation dates.

SA Power Networks is proposing to develop an SA Power Networks Certification that will enhance the competence of clearance contractors and ensure that all vegetation management activities are uniform and of a high degree of competency.

The program would include an enhancement to the skills for the vegetation clearance contract cutters who hold or working toward a Certificate II ESI Vegetation Control. The proposed modules identified by stakeholders include:

- Native vegetation management/species specific awareness.
- Customer/stakeholder management.
- Advanced pruning techniques.
- Legislative requirements (refresher).

The certification would:

1. Contextualise to SA Power Networks experience
2. Enhance the skills that are not covered in National Qualifications
3. Improve the skills for vegetation contractors in dealing with customers, understanding our legislative impacts and recognising and managing the cutting of native flora.

SA Power Networks is working with a number of potential training organisations and the contractor regarding delivery of the required training.

Council and customer feedback
SA Power Networks has developed a pre and post clearance survey for Council and residents/landowners to seek feedback on our current practices and improve our clearance outcomes. The survey results will be used to provide feedback to our contractor to improve our practices going forward.

8.3 Record keeping and practice

All customer complaints are tracked and monitored utilising SA Power Networks' CARE system. Through monthly reporting, SA Power Networks monitors complaint trends and identifies areas shown to be of the greatest concern by our customers.

A system to capture data is required to improve vegetation management data knowledge, enable effective strategic planning and improve future optimisation of the vegetation clearance program. In addition, a customer database is required to manage specific customer or landholder issues and requirements.

8.4 Auditing

Internal
SA Power Networks have a number of vegetation inspectors who audit clearance work by contractors year round.

External
SA Power Networks engage an external consultant to undertake audits on our compliance with legislative requirements for vegetation clearance. A pre and post summer audit is currently undertaken on behalf of SA Power Networks.

As part of the pre-summer vegetation clearance audit for 2015 a visual amenity audit was also undertaken and the results from this audit will be fed into our clearance program. This audit is an internal document that will be used to provide guidance and feedback on trimming techniques and training requirements.

8.5 Research/trials

Benchmarking with other utility providers in Australia is important to understand interstate trends and improvements in vegetation management to ensure we continue to implement best practice vegetation management in South Australia.

There is a need to keep up to date with technological improvements (ie. powerline covering and insulation) to understand options for managing vegetation near powerlines and undertaking trials to test their effectiveness.

There is a need for research into cutting practices and how different trees respond to cutting (ie. species specific programs, cutting techniques and their impacts). There are opportunities to work with Universities and educational institutions and develop partnerships with Waite and the Botanic Gardens on tree knowledge and research and specific vegetation management projects.

As mentioned earlier, we also have conducted removal and replacement trials in several council areas and are about to commence a comprehensive trial on the use of growth management tools.

8.6 Protocol review and update

It is anticipated that this protocol will be reviewed every two years to promote opportunities for continual improvement on how we manage vegetation near powerlines and how we engage with our stakeholders. However, any interested parties may provide relevant comment and feedback on this protocol at any time by writing to:

Customer Relations
SA Power Networks
GPO Box 77
Adelaide SA 5001
Email - customerrelations@sapowernetworks.com.au

The protocol will be reviewed in March 2018.

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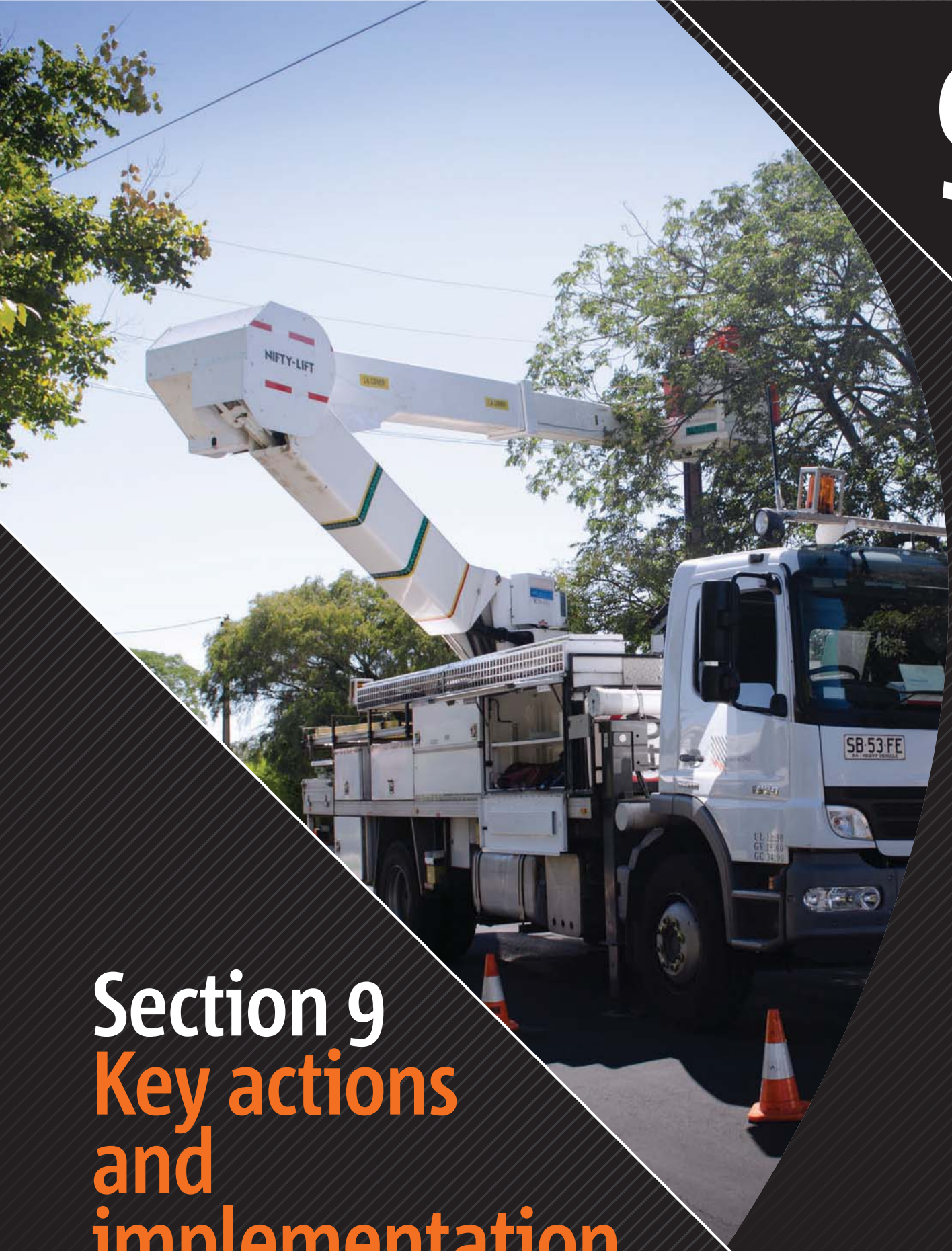


Section 9
Key actions and implementation

Key actions and implementation

SA Power Networks currently undertakes a program of vegetation clearance in bushfire and non-bushfire risk areas. This program is funded out of revenue approved by the Australian Energy Regulator (AER) to comply with the legislative requirements.

While additional funding was sought for a number of vegetation management initiatives through our Regulatory Reset Proposal for 2015-2020, specific additional initiatives were not approved for funding by the AER. The initiatives proposed were supported through community consultation and, as such, SA Power Networks remains committed to working with stakeholders to develop a more sustainable approach and to implement initiatives where they can be proven to be cost effective.

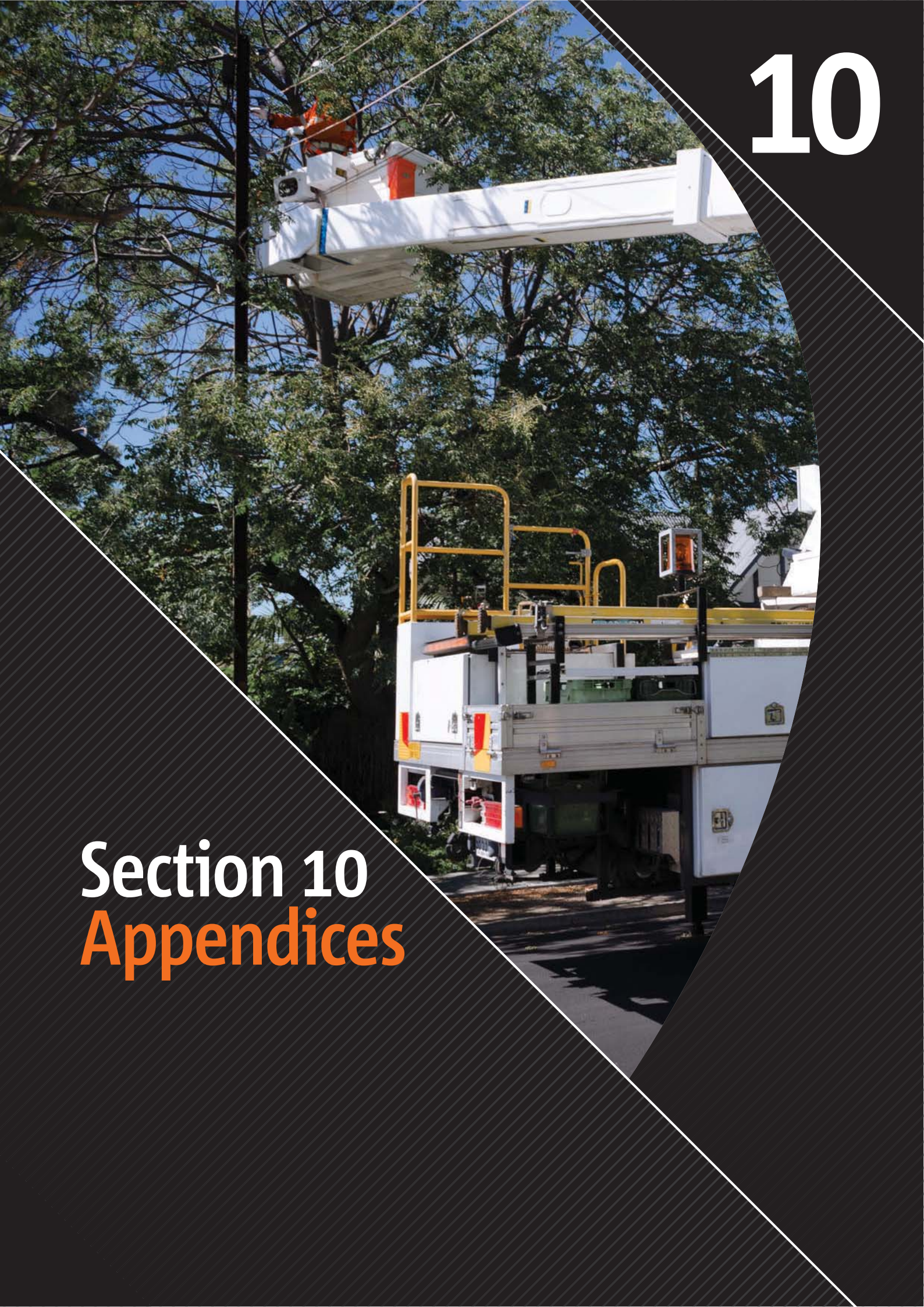
If an individual Council requires specific approaches for vegetation clearance that are above the baseline SA Power Networks clearance programs, Councils will need to contribute funding for their specific programs and needs. Furthermore, Councils also have the option to contribute to additional programs or take over trimming in full in their Council area (along with the associated liability).

SA Power Networks would also support proposals from Councils to introduce a different pruning regime or tree treatment as long as it meets our legislative and risk obligations or for which funding is provided.

The table below outlines some of the key actions or initiatives and whether they are currently funded or Council will need to fund.

Table: Proposed actions and initiatives

Action/initiative	Current approach (AER approved funding)	Council funding will be required to implement
Community and stakeholder engagement	Number of engagement initiatives developed at SA Power Networks discretion: • LGA Working Group • Arborist Reference Group • Local Government Forums • Pre and post clearance surveys • Vegetation Management material – poster, brochure, banner • Dedicated webpage for vegetation management	• Opportunities for partnerships in initiatives eg tree removal trials or engagement activities
Frequency of pruning cycle	• Annual in high bushfire risk areas and risk-based in medium bushfire risk areas • 3-year in non-bushfire risk areas	• Less than 3-year cycle
More advanced trimming practices	• Not funded	• More aesthetic and amenity pruning/sculpting
Location and species specific pruning regimes	• Not funded	• Council can contribute extra funding for different pruning regimes
Tree removal program	• Removals undertaken as part ongoing program in consultation with Councils • Number trials been undertaken	• Councils contribute eg stump removal and replacement • Councils provide funding to remove trees and replace with more appropriate species
Alternatives to pruning eg staged removal, growth retardants	• Not funded	• Council can contribute to implement program in partnership with SA Power Networks
Asset modification eg insulating wires	• Current budget for vegetation related asset modification issues	• Council can contribute funding towards asset modification in partnership with SA Power Networks
Undergrounding	• $9.5m PLEC scheme (2/3 SA Power Networks and 1/3 Council)	• Council continue to contribute 1/3 of total budget under PLEC program • Council can contribute funding for additional but related works eg traffic hotspots



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Section 10
Appendices

Appendices

Appendix A – Fact sheets

- Approved Tree List
- Tree Trimming near Powerlines
- Bushfire Safety
- Entering your land
- Trees and Powerlines

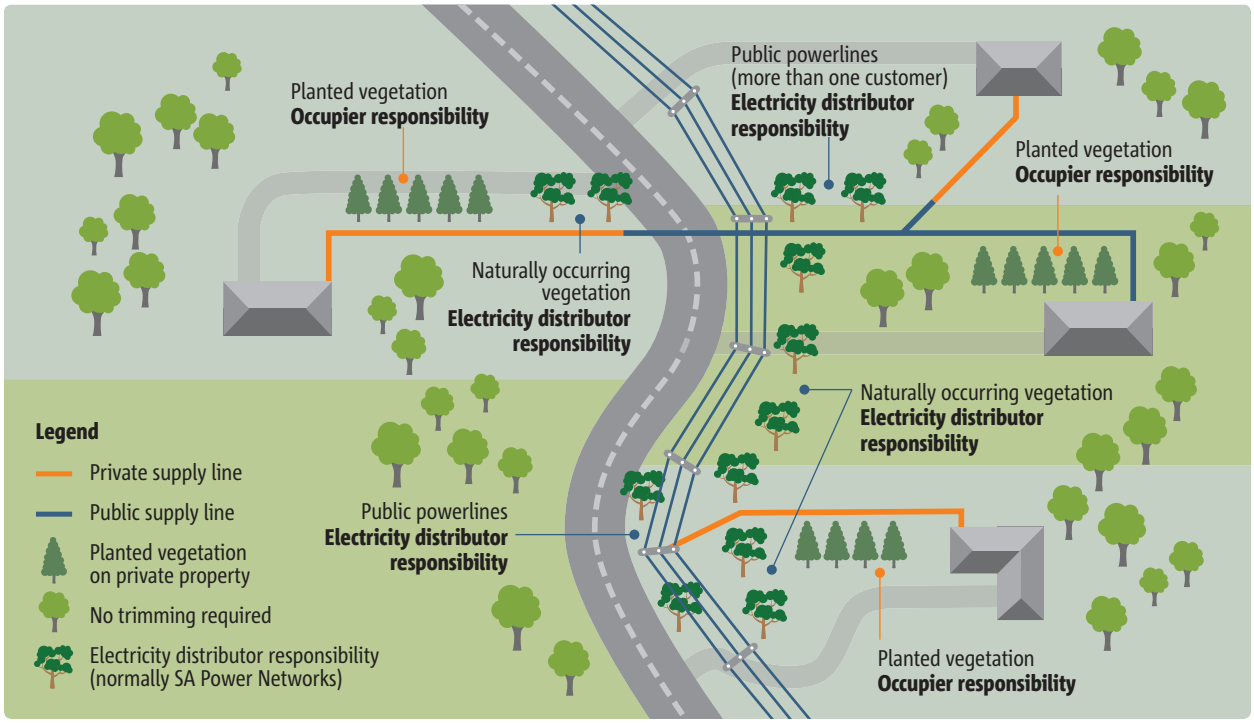
Appendix B – IAP2 Public participation spectrum

IAP2 Public participation spectrum

INCREASING LEVEL OF PUBLIC IMPACT

Inform	Consult	Involve	Collaborate	Empower
Public participation goal:	**Public participation goal:**	**Public participation goal:**	**Public participation goal:**	**Public participation goal:**
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions	To obtain public feedback on analysis, alternatives and/or decisions	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution	To place final decision-making in the hands of the public
Promise to the public:	**Promise to the public:**	**Promise to the public:**	**Promise to the public:**	**Promise to the public:**
We will keep you informed	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible	We will implement what you decide
Example tools:	**Example tools:**	**Example tools:**	**Example tools:**	**Example tools:**
• fact sheets • web sites • open houses	• public comment • focus groups • surveys • public meetings	• workshops • deliberate polling	• citizen advisory committees • consensus-building • participatory decision-making	• citizen juries • ballots • delegated decisions

Appendix C – Pruning responsibilities



Document Control

Revision	Details/Review Process	Date	Amended By
1	Original – Draft 1	October 2014	A Lewis
2	Final Draft for consultation	January 2015	A Lewis
3	Revised draft following stakeholder feedback	January 2016	A Lewis
4	Final Protocol	May 2016	A Lewis