

Network Asset Policy

Deciding between distribution overhead
and underground construction in road
reserves



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Document Control

Endorsement/Approvals

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Record of revisions

This document contains multiple formatting sections. When it is updated please ensure all section headers and footers have also been updated with correct version numbers and dates.

Revision no.	Date	DMS Reference	Revised by	Description
1	7/2/2008	3561971v3	D Patroni	Exemption for power quality transformers
2	4/5/09	3561971v4	S Grose	Clarified new transformer and fuse requirements
3	26/6/09	3561971v5	R Rogerson	Exemption for rectification of existing network deficiencies

Documents referenced in this document

DMS#	Title of document
3573985	Underground Distribution Schemes Manual

Other documents that reference this document

DMS#	Title of document

Stakeholders

In the process of document update, the following positions must be consulted:

Position/title
Distribution Design Manager
Manager Network Performance

Notification list

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1 OBJECTIVE

To provide guidelines for deciding between overhead and underground construction in road reserves for power supplies associated with subdivisional and non-subdivisional projects.

2 CONTEXT

Underground reticulation provides significant benefits to both Western Power and the community. These benefits include improved aesthetics and a safer and more reliable power supply.

Also, the State Government has a declared long-term objective to underground the distribution network in all urban and urban fringe areas of the Western Power network. Therefore, underground constructions should be promoted whenever it is practical.

3 WESTERN POWER REFERENCES AND SUPPORTING DOCUMENTATION

Underground Distribution Scheme Manual

<http://www.westernpower.com.au/documents/technicalDocumentation/UDSManual.pdf>

4 EXTERNAL REFERENCES AND SUPPORTING DOCUMENTATION

None

5 DEFINITIONS

This policy defines the following land use areas as given below:

- a) City or town areas - areas where the average residential lot size is less than 2,500 m² and the average commercial or industrial lot size is less than 4,000 m².
- b) Semi-rural or city/town fringe areas - areas where the average lot size is greater than that defined for city or town areas, but less than 10 ha.
- c) Rural areas - areas where the average lot size is greater than 10 ha.
- d) Subdivisional areas - areas subject to land subdivision.

If is necessary, to calculate the average lot size to identify whether an area is city or semi-rural, the calculation should be based on:

- i) At least 10 adjacent lots located on both sides of roads, in the area affected by the work.
- ii) All lots on both sides of roads affected by the work, if the number of lots is greater than 10.
- iii) Calculations should exclude the smallest and largest 10 percentile of lots. This is to exclude lots that may not be typical to the area.

6 POLICY STATEMENT

6.1 Policies applicable to all areas

For all types of extensions or augmentation work, excluding work to rectify existing network deficiencies (such as power quality issues or overloaded transformers), even if an overhead option is acceptable, underground construction should be considered and adopted, if possible. The exemption for rectification for existing network deficiency situations applies to all subsequent sections of this policy.

Overhead construction is not acceptable in existing underground areas or in areas that will be provided with underground power within the next 5 years, unless they are required on a temporary basis for subdivision development work - see UDS Manual for more details.

http://www.westernpower.com.au/mainContent/connectionsUpgrades/policiesRegulations/Underground_distribution_schemes.html

6.2 City or town areas

Overhead lines extensions: not acceptable, unless required on a temporary basis for subdivision development work – see UDS Manual for more details.

http://www.westernpower.com.au/mainContent/connectionsUpgrades/policiesRegulations/Underground_distribution_schemes.html

Upgrades of existing overhead power lines: acceptable, provided the work does not involve changes beyond the immediate requirements of the upgrade or alteration.

Relocations of existing overhead power lines: acceptable for projects involving up to 10 poles in one location (e.g. construction of a roundabout). However, power line relocations over distances greater than 200 metres are not acceptable (e.g. for road widening).

Pole top transformer (PTT) installations: New PTT installations on existing poles are not acceptable. Upgrading existing PTTs is acceptable but only when a suitable site for a ground-mounted transformer cannot be found.

Pole top equipment installations (e.g. pole top switches, reclosers, capacitors): Acceptable, provided the installation is within the principles of 6.1 and the work does not involve an extension of the overhead network. Existing drop out fuses (DOF's) may be replaced in situ but relocation of existing DOF's should be avoided without thorough assessment of the impact on customer aesthetics. DOF's must not be installed for new transformer installations within city or town areas. RMU's must be used to supply new installations within city or town areas.

6.3 Semi-rural or city fringe areas

Overhead lines extensions: acceptable only when underground cables cannot be installed because of hard rock.

Upgrades of existing overhead power lines: acceptable.

Relocations of existing overhead power lines: acceptable.

Pole top transformer installations: it is acceptable both to install new PTTs on existing poles and to upgrade existing PTTs.

Pole top equipment installations (eg. pole top switches, reclosers, capacitors): acceptable.

6.4 Rural areas

Overhead lines extensions: acceptable.

Upgrades of existing overhead power lines: acceptable.

Relocations of existing overhead power lines: acceptable.

Pole top transformer installations: it is acceptable both to install new PTTs on existing poles and to upgrade existing PTTs.

Pole top equipment installations (eg. pole top switches, reclosers, capacitors): acceptable.

6.5 Subdivisional areas

For more information on policies regarding subdivisions see UDS Manual.

<http://www.westernpower.com.au/documents/technicalDocumentation/UDSManual.pdf>

The summary of this policy is given in Table 1.

Table 1. Policy summary

- overhead constructions are not acceptable

- overhead constructions are acceptable

Areas	Types of overhead constructions				
	Extensions	Upgrades	Relocations	Pole top transformers	Pole top equipment
City or town	X ⁽¹⁾	✓ ⁽²⁾	✓ ⁽³⁾⁽⁶⁾	X ⁽⁴⁾⁽⁶⁾	✓ ⁽²⁾⁽⁶⁾
Semi-rural or city fringe	X ⁽⁵⁾	✓	✓	✓	✓
Rural	✓	✓	✓	✓	✓
Existing underground or to be undergrounded in the next 5 years	X ⁽¹⁾	X	X	X	X

Notes to Table 1:

- (1) Only acceptable on temporary basis for subdivision development work – see UDS Manual for more details.
- (2) Acceptable, providing that the work does not involve changes beyond immediate requirements of upgrade or alteration.
- (3) Acceptable for projects involving up to 10 poles in one location (e.g. construction of roundabout).
However, not acceptable for power line relocations over distance greater than 200 metres, (e.g. due to road widening).
- (4) Upgrading existing PTTs is acceptable but only when a suitable site for a ground-mounted transformer cannot be found.
- (5) Only acceptable when underground cables cannot be installed because of hard rock.
- (6) Exemption for rectification for existing network deficiencies