Treenet Proceedings of the 4th National Street Tree Symposium: 4th and 5th September 2003
ISBN 0-9775084-3-9

ELECTRICITY DISTRIBUTORS – POLICIES AND PRACTICES IN VEGETATION MANAGEMENT

Judy Fakes, Ryde College of TAFE

ABSTRACT:

The electrical distribution industry is a highly regulated, safety-driven industry responsible for delivering an uninterrupted supply of electricity to its consumers. It is also legally responsible for the management of vegetation in proximity to electrical assets.

This paper attempts to provide some background information on recent changes in this industry and their impact on vegetation management. Examples of positive approaches have been drawn from the author's experiences with a number of distributors including Country Energy and ENERGEX.

1. THE ELECTRICITY INDUSTRY

1.1 A changing industry.

The electricity industry consists of four types of enterprises:

* *Power generation* companies which produce energy to sell into the wholesale electricity market;
* *Transmission* companies which transport power from generators to the distribution system via the high voltage transmission network or the grid; management of vegetation in easements;
* *Distribution* companies that design, construct and maintain the network of poles, wires and associated infrastructure and which deliver electricity to consumers; most responsibility for vegetation management and
* *Retail* companies that purchase power from the wholesalers to sell to retail customers. (ETSA, 2003).

This paper discusses the policies and practices of the distribution sector in relation to vegetation management. Most of the examples are drawn from experiences in NSW, Queensland and South Australia. References are also made to changes that have occurred in other States.

Over the last twenty years, the Australian Electricity Distribution industry has gone through many changes, especially in the last five years. These changes include:

* Amalgamation of many small, local "Country Councils" into larger units. In NSW, further amalgamations have occurred. This resulted in many job losses, considerable restructuring and the need to develop new skills.

* Deregulation. Prior to deregulation, each state or territory operated its own government run monopoly market. A series of reforms has seen a move from public ownership to the formation of corporations and to private ownership in some states. The main aims of deregulation are to deliver customers lower costs, an increased range of services and a choice of energy retailer, connection service provider and metering service provider (Energy Australia, 2003). The latter reference to choice of provider is referred to as contestability.

For example, in 1946, the Electricity Trust of South Australia (ETSA) was established by the South Australian government as a publicly owned utility responsible for all aspects of providing electricity to SA. Deregulation saw the formation of ETSA Corporation. Between 1996 and 1998 this corporation was divided into several business units. ETSA Utilities, the distribution entity is now a member of the Cheung Kong Group of companies (as are a number of Victorian electricity enterprises) (ETSA, 2003).

The various phases of deregulation have included the establishment of a National Electricity Market and interconnection via a national grid which links NSW, Victoria, Queensland, SA and the ACT (ENERGEX, 2003). The National Electricity Market Management Company is the body corporate responsible for the administration and operation of the wholesale electricity market in accordance with the National Electricity Code (NEMMCO, 2003).

In summary, it could be said that electricity distributors:

* are highly regulated,
* operate in an increasingly complex and competitive market place,
* are regularly amalgamated and restructured,
* are an income source for governments and or shareholders, and
* outsource more operations and are increasingly involved in contract management.

1.2 Regulation

Electricity Distributors are highly regulated and monitored. As the business involves the construction and maintenance of the network and the selling of a product to consumers, there are many regulators. For example, Energy Australia, which supplies much of the Sydney to Newcastle market, is regulated by the following authorities:

* NSW Ministry of Energy & Utilities
* National Electricity Code Administrator
* National Electricity Market Management Company Ltd
* Independent Pricing & Regulatory Tribunal
* Australian Competition & Consumer Commission
* WorkCover NSW
* NSW Department of Fair Trading
* NSW Department of Planning & Natural Resources (Energy Australia, 2003).

Apart from external regulators and auditors, most distributors have rigorous internal auditing procedures.

2. VEGETATION MANAGEMENT

Vegetation management includes a range of strategies from pruning, tree removal, herbicide treatment, slashing, tree selection and electrical solutions such as alternative conductors, relocation of lines (including undergrounding), alternative constructions and the use of taller poles. Vegetation management may occur in designated easements and on public and private land.

Most of the responsibility for vegetation management sits with the distribution enterprises. All states and territories have legislation that determines the rights and obligations of distributors in relation to the management of vegetation in proximity to electrical assets. Recent changes in legislation in both NSW and Queensland have attempted to put more responsibility and or the costs associated with vegetation management onto the tree owner.

In both NSW and Queensland, there appears to be a renewed interest in vegetation management. Some likely drivers for this action would include a significant emphasis on safety from the Departments of Energy, network reliability, compliance with legislation and regulations, the high costs associated with vegetation management and increasing consumer awareness of environmental issues. The response by most distributors has been to develop or update policies and other strategies in line with these new requirements.

2.1 Legislation

The Industry Safety Steering Committee constituted by the NSW Minister for Energy & Utilities is currently reviewing the document *Guide to Managing Vegetation near Power Lines*. This document, otherwise known as ISSC 3, details the legislation, regulations and Codes of Practice with which the networks and their contractors must comply. In NSW this legislation includes:

* Electricity Supply Act 1995
* Electricity Supply (Safety & Network Management) Regulation 2002
* Electricity Supply (General) Regulation 2001, Part 11
    - Clause 102 Preservation of Trees
    - Clause 103 Tree Management Plans
    - Clause 104 Consultation with Councils and the public
* Code of Practice for Electricity Transmission and Distribution Asset Management
* Environmental Planning & Assessment Act 1979
* Protection of the Environment Operations Act 1997
* Pesticides Act 1999
* Native Vegetation Conservation Act 1997
* Threatened Species Conservation Act 1995
* Rural Fires Service Act 1997
* National Parks & Wildlife Act 1974
* Heritage Act 1977
* Soil Conservation Act 1938
* Occupational Health & Safety Act 2000
* numerous State Environmental Planning Policies (ISSC 3, 2003)

This is not the complete list but it serves to indicate the range of environmental and other legislation associated with vegetation management. ISSC 3 also sets the industry standards for clearances between vegetation and powerlines. Clearances depend on voltage of the line, insulated or not, span length and bushfire zones.

2.2 Vegetation Management Plans

In order to meet the requirements of the legislation, distributors in NSW have developed Vegetation/ Tree Management Plans. Country Energy, which covers 72% of the State, has developed *Trees for Life*, Energy Australia has produced a similar document. Essentially these documents detail the responsibilities of the distributors with respect to maintaining clearances between powerlines and vegetation, detail the pruning and or other methods of vegetation management including electrical solutions and offer advice on species selection and planting distances. These documents must go out for public comment.

2.3 Other policies

All distributors will have internal documents such as "Safe Working Procedures" for all operational activities including vegetation management. These documents generally set out the detailed safety procedures, technical details and training requirements.

Safety is the biggest issue for most distributors: safety of the public, safety of the network and safety of workers. Staff training therefore has a high priority. For example County Energy specifies the following qualifications for all staff (including contractors) who are engaged in removing vegetation near powerlines.

* 5099 Exemption to Regulation 133A of the Construction and Safety Regulations 1950,
* Resuscitation training,
* WorkCover EWP Certificate of Competency,
* TAFENSW Tree Care for Electricity Workers course,
* Chainsaw Safety Awareness Certificate,
* EWP Rescue and Controlled Descent Device Training,
* for those who climb – appropriate qualifications in climbing and aerial rescue for climbers and observers. (Country Energy, 2001)

3.0 PRACTICES – SOME POSITIVES

3.1 Employment of Horticulturalists and the establishment of Vegetation Management Teams.

To my knowledge, more than fifteen years ago, Integral Energy (then Prospect Electricity) was the first distributor in NSW to employ qualified Horticulturalists to advise in horticultural and environmental issues and policies. Those people are still with the organisation. Similarly, Energex (SE Qld), Country Energy and Energy Australia all have horticulturalists involved in a variety of roles. The roles include auditing of contractors for compliance with pruning practices, training of electrically qualified personnel, development of internal working procedures and other documentation and policies, liaison with local councils and community groups and the development of species lists and trial sites.

Energex and the now redundant NorthPower both went through a process of establishing dedicated Vegetation Management sections and teams. The sections used both electrically and horticulturally qualified people managing vegetation issues on a regional basis but with regular and centrally located collaboration. Both of these organisations clearly identified that vegetation was an area that required specialist knowledge that was beyond the scope of most electrically qualified staff. However, they also recognised that working in an electrical environment requires very close attention to safety regulations.

Recent restructuring and or amalgamations has seen changes to the vegetation management strategies of both organisations. It appears that the NorthPower model will be applied to Country Energy. It is hoped that the expertise developed by the original Energex teams will not be lost in the system but will be built upon.

3.2 Vegetation Management Agreements.

The concept of establishing formal vegetation management agreements between electricity distributors and local government (tree owner) authorities is not new. During the 1980s and 1990s, a number of formal sessions were held by Prospect Electricity and their constituent councils to develop agreements on who would be responsible for various aspects of vegetation management including pruning, tree removal and replacement. These were based on the Electricity Council of NSW Model Agreement (Department of Minerals & Energy, 1990).

In many instances, especially in rural areas, verbal agreements have been made between individuals from both parties. However, when one person leaves the organisation or there is a restructure, the situation may become unclear and problems may arise. In 2003, both Country Energy and ENERGEX have embarked on new programmes to formalise agreements between themselves and constituent councils.

In Brisbane in July this year, ENERGEX and SEQROC (South-east Queensland Regional Organisation of Councils) set up a two-day Vegetation Workshop. The aims of the workshop were to:

** develop a mutual understanding of the relationship between local governments and energy authorities and the role they play in vegetation management to achieve community outcomes, and*

** discuss and develop the Vegetation Management Framework Agreement between individual SEQROC members and ENERGEX.*

There were representatives of most of the major member councils as well as SEQROC and ENERGEX. The programme was structured to provide all participants with perspectives and information from all stakeholders. Presentations included legislative requirements and management options and specific examples of tree selection, species trials, public education, tree removal and replacement programmes that were already in place. The workshop also provided an excellent opportunity for local councils to clearly present their issues and concerns to ENERGEX. For example, biodiversity rated highly as an area of concern to a number of key councils. It also allowed for ENERGEX to present a more public and personal face to the councils.

The workshop was very informative and successful. The general ‘Vegetation Management Framework’ which had been formulated at a State level was edited to an ENEGEX/SEQROC document. This will now be the basis of specific and detailed agreements between ENERGEX and each of their constituent councils.

3.3 Species trials.

As with Vegetation Management Agreements, species lists prepared by energy authorities have been around for many years. A number of colourful and informative documents have been published including *Your Guide to Tree Planting near Powerlines* (Powercor,1995) and *Tree Planting Near Powerlines* (ETSA, 1989).

The quality of the list has depended on who prepared the document and the criteria for selection. Most horticulturalists would consider that a mature height of 4.0 meters is completely inadequate to provide the many benefits we seek from street trees let alone accommodate pruning for pedestrians and vehicles. Similarly, any one who has been involved in selecting species for street plantings is aware that it is an extremely complex process and that there is no such thing as the perfect street tree.

Brisbane City Council is currently trialling a number of local rainforest species as well as a range of grafted *Brachychiton* spp. Maureen See from BCC is one of the project officers. The grafted Brachychitons are the brainchild of Helen Leicht, Horticulturalist with ENERGEX. The BCC trial is in its third year. The aims of the trial are to enhance the range of suitable street tree species and to showcase some of the lesser known and used south-east Queensland rainforest species (See, 2003). It is intended that the trials be registered as TREENET sites.

3.4 Community education.

All distributors produce a range of printed and electronically available material for their consumers. Some web sites are more informative than others.

ENERGEX has developed a range of material branded as "safe**tree**". This includes information on planting, labels for nursery stock, postcards to notify residents of planned pruning work, television advertisements and so on. The services of a public relations expert have been secured to work with technical specialists.

3.5 Pruning practices.

The requirement for pruning trees near powerlines will be with us for many years despite pressure being applied to locate more electrical services underground. Given the high recurrent costs of pruning it is easy to see why distributors are keen to share the costs with tree owners and to pursue other means of vegetation management.

It is my strongly held opinion, based on almost twenty years of practical experience, that selective reduction pruning is the most effective long-term method for pruning trees near powerlines. "Gully-cutting" and lopping are both excessive and counter-productive. The intervals between pruning must be based on biological responses and community requirements rather than rigidly prescribed maintenance schedules. The longer the interval, the greater the volume that must be removed from the tree and generally the greater the negative response from the community (Fakes, 2000).

Contracts set up by a number of distributors now allow for clearance maintenance over a three year period rather than prescribed cycles however annual cuts have been successful in many regional centres. The challenge is to maintain good pruning practices.

Country Energy has now made the TAFE NSW course "Tree Care for Electricity Workers" a component of their apprentice's training. This organisation has also engaged an ecologist in one of their regions to improve their environmental management of easements.

4.0 CONCLUSIONS

Electricity distributors are like many other organisations in that they are grappling with increasing demands to become more efficient, more profitable and more environmentally responsible whilst managing their core business which is the uninterrupted supply of electricity to their consumers.

The way ahead in vegetation management is for shared responsibility. This will require a better understanding of the structure, goals and the dynamics of the various organisations involved in owning and managing vegetation. There needs to be clearer lines of communication between stakeholders. The formulation and implementation of co-operative and collaborative policies and practices which are flexible enough to meet local requirements is the challenge for all of those involved with the management of vegetation near powerlines.

It is clear from recent management decisions by some distributors in NSW and Queensland (and to a certain extent South Australia) that responsible management of vegetation and the environment is high on the agenda.

REFERENCES

Country Energy (2001) *Procedure: Removing vegetation near overhead powerlines.* CEP2021. 5th November, 2001

Department of Minerals & Energy (1990) *Guidelines for Tree Planting and Maintaining Safety Clearances near Powerlines.* 2nd Edition

Energy Australia (2003) www.energy.com.au/ea/earetail

ENERGEX (2003) www.energex.com.au

ETSA (1989) *Tree Planting Near Powerlines*

ETSA (2003) www.etsautilities.com.au

Fakes, J. (2000) "Practical Issues in Line Clearance and Street Trees"

Proceedings Inaugural TREENET Symposium, Adelaide.

Industry Safety Steering Committee (2003) (Draft) *Guide to Managing Vegetation Near Power Lines: Integrating Community, Safety and Environmental Values.* ISSC 3.

NEMMCO (2003) www.nemmco.com.au

NorthPower (1999) *Trees for Life: Vegetation Management Plan for Public Consultation.*

Powercor (1995) *Your Guide to Tree Planting near Powerlines*, Powercor, Southbank.

See, M. (2003) "Street Tree Trial Program", paper presented, Vegetation Management Workshop; ENERGEX/SEQROC, July, 2003, Brisbane