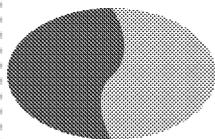




ELECTRICITY SAFETY ACT 1945

NATIONAL COMPETITION POLICY REVIEW

ISSUES PAPER



DEPARTMENT OF **FAIR TRADING**
NSW Consumer Protection Agency

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Glossary

APEC	Asia-Pacific Economic Cooperation
COAG	Council of Australian Governments
Declared articles	Electrical articles that require approval as meeting legislated standards before they may be sold in Australia, as agreed by all jurisdictions
Electrical article	Any wire, cable, appliance, fitting, meter, insulator, apparatus or material intended, suggested or designed for use in, or for the purposes of, or for connection to, any electrical installation
Electrical installation	<p>Any appliances, wires, fittings or other apparatus placed in, on, under or over any land or premises (including land or premises owned, occupied or leased by the Crown) and used for or for purposes incidental to the conveyance, control and use of electricity supplied or intended to be supplied by an electricity supply authority, but does not include:</p> <ul style="list-style-type: none">(a) any electricity supply main or service line of an electricity supply authority,(b) any appliances, wires, fittings or other apparatus connected to and extending or situated beyond any electrical outlet socket:<ul style="list-style-type: none">(i) which is installed for the purpose of connecting portable electrical appliances, fittings or other apparatus, and(ii) at which fixed wiring terminates,(c) any appliances, wires, fittings or other apparatus which are:<ul style="list-style-type: none">(i) placed in, on or over any land or premises owned or occupied by an electricity supply authority, and(ii) used for the generation, transmission or distribution of electricity,(d) any electrical installation in or about a mine within the meaning of the Coal Mines Regulation Act 1982 or within the meaning of the Mines Inspection Act 1901, or(e) any electrical installation operating at not more than 32 volts alternating current or 115 volts direct current.
ERAC	Electrical Regulatory Authorities Council
GATT	General Agreement on Tariffs and Trade
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
JAS-ANZ	Joint Accreditation System of Australia and New Zealand

MRA	Mutual Recognition Agreement
NCC	National Competition Council
NCP	National Competition Policy
Non-declared articles	Electrical articles that must meet legislated minimum safety standards before sale, but do not require approval by the relevant authorities
QAS	Quality Assurance Services Pty Ltd
Relevant authorities	Government agencies that are responsible for the approval of declared articles
Standards Australia	Standards Australia International Limited
The ‘Act’	The Electricity Safety Act 1945
WTO	World Trade Organization

1. Introduction

1.1 The need for a review

A review of the *Electricity Safety Act 1945* is being undertaken in accordance with the National Competition Policy, which was endorsed by the Council of Australian Governments (COAG) in April 1995. One of the major components of the National Competition Policy (NCP) is the Competition Principles Agreement, which commits the New South Wales Government to reviewing all of its legislation that restricts competition. On 3 November 2000 COAG extended the timeframe for completion of legislation reviews from 31 December 2000 to 30 June 2002.

The Competition Principles Agreement establishes principles for pro-competitive reform of government business enterprises and removal of impediments to markets where they are not in the public interest. The Agreement requires that legislation should not restrict competition unless it can be demonstrated that the benefits to the community as a whole outweigh the costs and that the objectives of the legislation can only be achieved by restricting competition.

Examples of types of restrictions include:¹

- legislatively created monopolies to provide or operate infrastructure, marketing schemes (particularly in agriculture) or special government-backed initiatives;
- licensing schemes that restrict entry to particular businesses;
- regulations which restrict entry to particular professions;
- quota restrictions to preserve natural resources;
- regulations which specify strict technical standards for products or services; and
- administratively determined pricing arrangements for nominated goods and services.

More specifically, the Agreement states that any review of legislation should:

- a) clarify the objectives of the legislation;
- b) identify the nature of the restrictions on competition;
- c) analyse the likely effect of the restriction on competition and on the economy generally;
- d) assess and balance the costs and benefits of the restriction; and
- e) consider the alternative means for achieving the same result, including non-legislative approaches.

All NSW legislation has been examined to determine whether it establishes market entry barriers or requires conduct that has the potential to restrict competitive behaviour in the marketplace. The *Electricity Safety Act 1945* was identified as potentially restricting competition and is listed for review.

¹ Guidelines for NCP Legislation Reviews, Centre for International Economics, p.8.

1.2 Market failure and consumer protection

Legislative controls are usually imposed by government to address problems arising from the provision of goods and services in an unregulated environment. These problems are also known as “market failures.” An example of such a market failure is where there is an imbalance of information between traders and consumers, limiting the ability of the consumer to make informed choices when seeking a product or service. However, regulation may also restrict competition among traders. This may result in new problems or costs for business, consumers and government that are not justified relative to the problem that the intervention aimed to address. Alternatively, regulation may not be effective in addressing the identified problems.

1.3 The review process

It is the Government’s policy to ensure that the review process takes into account the full range of public benefits of the legislation and that all views are thoroughly considered before any reforms are proposed.

In assessing the public benefits of legislation, the Competition Principles Agreement² calls for the following matters to be taken into account where relevant:

- government legislation and policies relating to ecological sustainable development;
- social welfare and equity considerations, including community service obligations;
- government legislation and policies relating to matters such as occupational health and safety, industrial relations and access and equity;
- economic and regional development, including employment and investment growth;
- the interests of consumers generally or a class of consumers;
- the competitiveness of Australian businesses; and
- the efficient allocation of resources.

The review of the *Electricity Safety Act* is being conducted by a steering committee, chaired by the Department of Fair Trading, together with representatives of the Ministry of Energy and Utilities and The Cabinet Office. Given the consumer safety aspects and technical nature of the legislation, a reference group has been established to provide the steering committee with advice from different fields of expertise. This consultative committee includes consumer and government representatives from:

- the Utility Consumers Advocacy Program;
- the Australian Consumers Association; and
- the WorkCover Authority of New South Wales.

² Competition Principles Agreement, clause 1(3).

The purpose of the *Electricity Safety Act 1945* review is to consider:

- the objectives of government regulation of certain safety aspects of electricity distribution and usage, the manufacture, supply and sale of electrical appliances, product information standards, and associated approval and certification;
- whether regulatory intervention is still justified;
- the impact of the current Act on competition within the industries; and
- whether the government objective could be met by any less restrictive mechanism.

Although the emphasis of the review is on anti-competitive provisions, the review may also consider the general effectiveness of the legislation and examine other issues of concern to consumers and industry.

The complete terms of reference for the review are detailed in Appendix 1.

This issues paper has been produced to stimulate discussion within the community and to assist interested individuals and organisations wishing to lodge a submission to the review. The paper will be widely circulated to interested parties for responses to the issues raised and any other relevant matters.

The issues paper:

- outlines the principles of the National Competition Policy and explains why this review is being carried out;
- explains the review process;
- provides background information on the *Electricity Safety Act 1945*;
- examines the objectives of the *Electricity Safety Act 1945*;
- raises competition and other issues associated with the way the legislation operates; and
- outlines possible options for addressing the regulation of the relevant electricity safety issues and considers some of the costs and benefits of each option.

Submissions to the review may address the issues raised throughout the paper (see Appendix 2 for a complete list of issues), as well as comment on other relevant issues not identified here. Where questions raised in the paper are addressed, the Steering Committee would appreciate the inclusion of the issue reference numbers.

Written submissions should be sent to:

The Project Manager, Electricity Safety Review
Policy Division
Department of Fair Trading
PO Box Q168
QVB POST SHOP NSW 1230

e-mail: dtraurig@fairtrading.nsw.gov.au

**The closing date for submissions is
29 November 2001.**

For extra copies of this paper call 9338 8913 or 13 32 20. The issues paper may also be downloaded from the Department's web site at www.fairtrading.nsw.gov.au, under Legislation/Issues Papers and Reports.

It should be noted that submissions to this review will be public documents, unless confidentiality is specifically requested in writing.

A final report will be prepared for the consideration of the Minister for Fair Trading, the Hon. John Watkins MP, once submissions have been analysed.

2. Background to the review

This section of the issues paper provides background information on the regulation of electricity safety in New South Wales, related legislation and the uniform national approval scheme.

2.1 A brief history of the Act

Originally named the *Electricity Development Act 1945*, the legislation established a central planning and co-ordination authority to develop and expand the electricity supply throughout New South Wales, particularly to primary and secondary industries.

The Electricity Authority of New South Wales, a body corporate, was empowered to regulate the extension of the existing power supply and the 184 electricity distributors operating at that time, including:

- the Commissioner for Railways;
- the Southern Electricity Supply;
- the Water Conservation and Irrigation Commission;
- 80 municipal councils;
- 35 shire councils;
- 8 county councils; and
- 58 franchise holders.

The *Electricity Development Act* enabled the Authority to subsidise the provision of electricity to areas of rural New South Wales where it would not otherwise be economical to do so.

The Electricity Authority had the power to:

- license contractors and electricians;
- regulate the sale and hire of electrical apparatus;
- set standards for materials used in electrical wiring and in the manufacture of electrical equipment;
- authorise the right of entry to any premises to examine electrical installations, machinery and appliances to ensure that they were not dangerous;
- require a council to make additions or alterations to plant and equipment in a council's power station; and
- regulate the form and basis of electricity charges.

Since its enactment, the legislation has undergone numerous amendments. The statutory constitution of the electricity county councils was transferred to the Act from the *Local Government Act 1919* in 1987, changing the name of the Act to the *Electricity Act 1945* at the same time.

The prohibition of the sale of certain electrical articles, conformity of certain electrical items with safety standards and labelling of other electrical articles was introduced by the *Electricity and other Legislation (Amendment) Act 1991*. Consumers were made responsible, to the best of their ability and knowledge, for the safety of their electrical installations. This amendment act also introduced accident and reporting provisions, transferred provisions covering the theft of electricity from the *Crimes Act 1900* and

created an Electricity Development Fund account in the Treasury to receive the assets and liabilities of the Industrial Development Assistance Fund. The Electricity Development Fund is controlled by the Energy Corporation of New South Wales, which is constituted under the *Energy Administration Act 1987* and operates as the legal entity of the Ministry of Energy and Utilities. The Electricity Development Fund is due to be abolished under the *Electricity Supply Act 1995*, however the relevant amendments are not yet in force.

As part of the wider national reform of the energy market, the authority of network operators to provide and protect reticulated electricity services was transferred from the *Electricity Act 1945* to the *Electricity Supply Act 1995*. The provisions relating to electrical safety and accident reporting remain in what is now known as the *Electricity Safety Act 1945*.

2.1.1 Current provisions of the Act

The Act currently:

- empowers the Energy Corporation of New South Wales to promote, regulate and encourage the safe use of electricity, both generally and with emphasis on primary and secondary industrial users;
- gives the Energy Corporation the same powers as an electricity supply authority should the life or health of any person be at stake;
- establishes the Electricity Development Fund in a NSW Treasury account, directed, controlled and managed by the Energy Corporation, for contributions from the Energy Corporation, electricity distributors constituted under the *Energy Services Corporations Act 1995* and any money provided by Parliament;
- authorises the Director of the Department of Energy (now the Director-General of the Ministry of Energy and Utilities) to direct the relocation of roadside electricity structures, if required;
- makes it an offence to sell (including attempt to sell, barter, supply or hire) prescribed electrical articles that do not conform to the Act;
- requires that electrical appliances be designed, manufactured, and, in certain cases, approved to meet minimum safety requirements so that they will not, in normal use, result in electric shock, injury or death to the user, or fire damage to the user's property;
- authorises appointed investigators to inspect, test and seize electrical articles and to acquire relevant information;
- authorises appointed investigators to enter property, inspect and test electrical apparatus and appliances and ensure that persons doing electrical wiring work are not prohibited from doing that work;
- requires the notification of serious electrical accidents and enables the appointment of inspectors, with associated powers, to investigate such accidents, as well as allowing the publication of accident details;
- authorises the Minister for Fair Trading and the Minister for Energy to delegate their respective functions under the Act (other than the power of delegation);
- makes consumers responsible, to the best of their ability and knowledge, for the safe use of electrical installations;
- enumerates the matters on which the Governor may make regulations (see Appendix C); and
- includes savings, transitional and other provisions consequent on the enactment of legislation resulting from the national energy market reforms.

2.2 Administration of the Act

The *Electricity Safety Act 1945* is jointly administered by the Minister for Fair Trading, who administers the Act so far as it relates to electrical articles and electrical installations, and the Minister for Energy, who administers the remainder.

Under this arrangement the Department of Fair Trading regulates a compulsory pre-sale certification scheme for specific (declared) electrical appliances and a voluntary certification scheme for all other electrical products. The Department investigates and maintains records of serious electrical accidents and analyses them in order to improve the safety of electrical appliances and installations. Its functions include:

- pre-market safety certification and regulation of safety requirements for electrical appliances and accessories;
- inspecting safety standards and procedures for electrical work on all types of premises;
- collection and analysis of electrical accident data;
- accident prevention through safety promotions and education, improved safety standards and regulatory controls; and
- identification and correction of problems in the marketplace where unsafe electrical goods or practices are reported.

The Ministry of Energy and Utilities' responsibilities in respect of the *Electricity Safety Act 1945* comprise functions of the Energy Corporation of New South Wales and safety issues associated with electricity supply networks. Its functions include:

- promotion and regulation of standards relevant to the electricity supply industry;
- inspection of electrical installations, cathodic protection systems and stray current sources;
- investigation of accidents relating to electrical installations;
- dissemination of safety information and accident statistics and participation in safety promotion; and
- administration of nationally agreed energy labelling requirements (key elements of the National Greenhouse Strategy).

2.3 Related legislation

The equivalent regulatory authorities in Australian jurisdictions are:

- for New South Wales – the Department of Fair Trading (electrical articles) and the Ministry for Energy and Utilities (electrical installations);
- for Queensland – the Electrical Safety Office, Department of Industrial Relations³;
- for Victoria – the Office of the Chief Electrical Inspector;
- for South Australia – the Office of Energy Policy, Primary Industries and Resources (electrical articles) and the Office of the Technical Regulator (electrical installations);
- for Tasmania – Electricity Standards and Safety⁴, Workplace Standards Tasmania, Department of Infrastructure, Energy and Resources;
- for Western Australia – the Office of Energy;
- for the Northern Territory – the Department of Industries and Business; and

³ The Electrical Safety Office was recently relocated from the Department of Mines and Energy.

⁴ Previously known as the Electrical Safety Group, the unit relocated recently from the Office of Energy Planning and Conservation.

- for the Australian Capital Territory – the Department of Urban Services.

In New Zealand the Energy Safety Service is part of the Ministry of Consumer Affairs.

The Act is referenced in other legislation, as follows:

- as a corresponding law for Chapter 3 (Energy efficiency labelling) of the Queensland *Electricity (Electrical Articles) Regulation 1994*;
- in Part VII - *Prohibition or Regulation of the Sale, Hiring, Installation or Connection of Articles of Electrical Equipment* of the *Electricity Act 1971* (Australian Capital Territory), which prescribes articles of electrical equipment included in a class of electrical articles specified in an order in force under section 21 of the Act;
- Schedule 1 of the *Electrical Workers and Contractors Regulations* (Northern Territory) recognises electricians licensed under the Act; and
- in New South Wales, certificates and licences issued under (now repealed provisions of) the *Electricity Safety Act* remain in force, and offences under the Act may be prosecuted under section 135 of the *Home Building Act 1989*. Certificates and licences are now issued under the *Home Building Act*.

Mutual recognition legislation requires that approvals in force in New South Wales are also recognised in other jurisdictions, and vice versa, although this requirement may be overridden if necessary.

Under the *Trans-Tasman Mutual Recognition Arrangement*, regulatory standards adopted in New Zealand regarding goods and occupations are uniformly recognised in Australian jurisdictions and vice versa. Although the Arrangement commenced on 1 May 1998, certain parts were provisional on enacting legislation being introduced in the States and Territories. For example, the *Electricity Safety Act 1945*, the *Electricity (Equipment Safety) Regulation 1994* and the *Electricity (Energy Labelling of Electrical Articles) Regulation 1995*, ‘in the interests of protecting the health and safety’ of persons in New South Wales, had been exempted from the operation of the arrangement by the *Trans-Tasman Mutual Recognition (New South Wales) Temporary Exemptions Regulation 1998*. This exemption was of 12 months duration (ceasing on 30 April 1999). The *Electricity Safety (Equipment Efficiency) Regulation 1999* was also exempted from the arrangement for one year (until 4 November 2000). The exemptions were established while co-operation programs to examine the appropriateness of mutual recognition principles continued.

The Act is also subject to a number of international agreements:

- *General Agreement on Tariffs and Trade* (GATT) an international trade agreement signed by Australia in 1948, now replaced by the World Trade Organization (WTO). There are 140 WTO members.

In general terms, GATT requires standards to be set consistently for imported and locally produced products; that is, importers should not have higher requirements than the local manufacturer. The clear intention of this requirement is to ensure that countries do not use the imposition of standards as a barrier to entry in the absence of tariffs. As a result standards writers are required to take account of international standards when setting Australian standards.

- *Agreement on Mutual Recognition in relation to Conformity Assessment, Certificates and Markings* between Australia and the European Community (Australian Treaty Series 1999 No 2), which came into force on 1 January 1999.
- *Agreement on Mutual Recognition in relation to Conformity Assessment, Certificates and Markings* between Australia and the Republic of Iceland, the Principality of Liechtenstein and the Kingdom of Norway [European Free Trade Association - European Economic Area] (Australian Treaty Series 2000 No 17), which came into force on 1 July 2000.

These latter agreements fall under the jurisdiction of the Department of Foreign Affairs and Trade. Both agreements require the harmonisation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits, as amended. As a result, designated Conformity Assessment Bodies assess the compliance of electrical products within the scope of the Act and the *Electricity (Equipment Safety) Regulation 1994* and any other relevant low voltage electrical equipment.

- The 1999 *Asia Pacific Economic Cooperation Mutual Recognition Arrangement on Conformity Assessment of Electrical and Electronic Equipment* is intended to reduce duplicate testing and certification of products for export between participating APEC economies. Arrangements under this agreement are voluntary.
- The *Australia-Singapore Mutual Recognition Agreement on Conformity Assessment* (Singapore MRA), amongst other things, will allow electrical and electronic products to be fully assessed for conformity with standards and legal requirements in the country of origin, streamlining export procedures between the two countries. The relevant provisions of the MRA entered into force on 1 June 2001.

2.4 Uniformity

Due to regional variations and the recent reforms of national infrastructure that were based on the recommendations in the *Independent Committee of Inquiry into National Competition Policy* report by Professor Fred Hilmer, New South Wales' *Electricity Safety Act 1945* does not have a direct equivalent in other jurisdictions. Nevertheless, elements of the Act are current in every State and Territory of Australia.

The scheme for the approval and certification of electrical articles is uniform across all States, Territories and New Zealand. This has been achieved by the participation of all jurisdictions on the Electrical Regulatory Authorities Council (ERAC), a technical and safety liaison body which also co-ordinates some of its activities with the Commonwealth Government. ERAC's role also includes involvement in the

development of standards (by Standards Australia International Ltd, commonly known as Standards Australia), the national co-ordination of recalling dangerous electrical products, safety promotion strategies, accident prevention programs and electrical appliance energy efficiency.

Standards Australia is a non-profit company with membership comprising representatives from a range of Australian businesses, industry, unions, academia and government. As well as developing and amending standards covering management systems, production processes, transport of dangerous goods and labelling, Standards Australia also represents Australia on a number of international standardising bodies, including the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). The Commonwealth Government recognised Standards Australia as the peak non-government standards body in 1988.

In 1990, Standards Australia established Quality Assurance Services Pty Ltd (QAS) to provide conformity assessment and certification services to Australian and international standards, including the ISO 9000 quality system. QAS is presently the only non-governmental body recognised in all jurisdictions to provide these services in accordance with the *Electricity Safety Act*.

2.5 Recent developments

Review of electrical safety in Queensland

The Queensland Government commenced a major review of its electrical safety regime last year. The review encompasses the entire administrative and legislative electrical safety regime, including the structure of the Electrical Safety Office and the Division of Workplace Health and Safety (both within the newly created Department of Industrial Relations).

The Electrical Safety Office's responsibilities include administering legislation equivalent to the provisions of the New South Wales *Electricity Safety Act*, as well as the licensing of electrical contractors and workers.

It should be noted that the Queensland review has been prompted by concerns about workplace safety issues and accident investigation practices.

Electricity safety in New Zealand

Within certain limits, in New Zealand any person may do any electrical wiring work on domestic installations and maintenance of domestic appliances, as long as the work is carried out in a competent manner, no part of the work is connected to a power supply whilst the work is being done, and, where required, the work is tested and certified by a registered electrical inspector before power is reconnected.

Subject to certain conditions, prescribed electrical work may be carried out by persons other than registered electricians and apprentices and trainees under appropriate supervision. These other persons include registered line mechanics, registered electrical inspectors, registered electrical service technicians and qualified engineers.

Review of electrical safety in New Zealand

The New Zealand Government has been working to facilitate the implementation of the Trans Tasman Mutual Recognition Arrangement, including the formation of an Energy Safety Service at the Ministry of Consumer Affairs. The Energy Safety Service is responsible, amongst other things, for the safety of electrical appliances, installations, supply and generating systems, and safeguarding the public and property from electricity hazards.

The New Zealand Energy Safety Service is in the midst of reviewing its electrical appliance regime. Certain amendments to the New Zealand legislation have been effected in support of the Trans Tasman Mutual Recognition Agreement for electrical appliances. It appears that consideration is being given to decreasing the number of items on the New Zealand Declared Articles List to four, compared to the 60 presently declared articles in New South Wales (and Australia). The New Zealand regime would also include a supplier declaration regime for non-declared articles, which would require suppliers to provide evidence of compliance with acceptable standards for those items imported into Australia.

Review of declared articles

The prospect of reducing the number of declared articles in Australia to 51 has been on ERAC's table for some time. Consideration is also being given to a total review of the declared article system by regulatory authority representatives, with the intention of re-evaluating the reasons for the inclusion of each article or removing it from the list. Each declared article would then be reassessed at regular intervals.

To this end, Standards Australia has prepared a standard for nationally consistent marking of electrical products. *AS/NZS 4417 Marking of electrical products to indicate compliance with regulations* is intended to provide the basis for a uniform Australian/New Zealand regulatory compliance marking scheme. ERAC has agreed on a list of regulatory definitions of declared articles, which is proposed to replace appendix E in *AS/NZS 4417:2 Specific requirements for electrical safety regulatory requirements*. The list is proposed as a model for the various State and Territory regulators to replace existing non-uniform declared article definitions.

Review of markings

Each of the jurisdictions involved in the approval of electrical articles has its own approval mark that consists of a letter denoting the State followed by a series of numbers, while QAS has two types of approval marks. A significant number of small businesses find the different approval marks confusing and ERAC has agreed to promote a single easily recognisable mark, similar to the European CE mark.

3 National Competition Policy issues

This section of the issues paper gives a broad overview of the objectives of the National Competition Policy, and how it relates to the *Electricity Safety Act 1945*. It then goes into more detail about the objectives of the legislation and the problems it is intended to address.

3.1 National Competition Policy and market theory in relation to consumer protection legislation

As previously stated, the goal of the National Competition Policy is to remove restrictions on competition to enable Australian businesses to compete efficiently while maintaining appropriate levels of community protection. An underlying principle of NCP is that legislation should not restrict competition unless the benefits to the community as a whole outweigh the costs of the restriction and the objective of the legislation can only be achieved by restricting competition.⁵

Consumer protection legislation is generally developed as a response to problems experienced by consumers when purchasing goods or services. Such problems may be the result of what economists term 'market failure'. A market may fail or become distorted where businesses do not operate in the best interest of economic efficiency or where environmental or social detriment occurs.

Economic analysis indicates that competitive markets for goods and services tend to efficiently allocate the economy's resources. Consumers are considered to play a pivotal role in this process by influencing the supply of goods and services through making optimal purchasing choices. This view sometimes assumes that traders and consumers have equal weight and bargaining power in negotiating transactions. In reality, consumers may have inadequate information about products and services, such as how safe or costly a product is to use.

There may be significant costs to consumers in adequately informing themselves about prospective purchases that will limit their capacity to make optimal (safe) choices. In addition, some consumers will be more proficient than others in accessing and interpreting information and some traders will be aware of this and may withhold essential information. In the case of electrical safety issues, this may mean the difference between purchasing an appliance that performs satisfactorily when properly used and an item that breaks down and catches fire because of sub-standard design or workmanship.

When evidence of market failure comes to light, it is necessary to consider firstly whether government action is required or whether the matter is one best left to the marketplace. A case for government intervention may be made, provided that it is efficient and effective in that it protects the interests of consumers without unnecessarily restricting business innovation and competitiveness. The full range of possible government actions needs to be considered and the one which provides the

⁵ *New South Wales Government Policy Statement on Legislation Review*, June 1996.

greatest public benefit while imposing the least cost should be selected, unless the objectives of the legislation can only be achieved by restricting competition.

3.1.1 Consumer protection in relation to the Act

For the reasons outlined above, much consumer protection legislation is designed to ensure that consumers have access to relevant, accurate information to enable them to compare the value of goods and services available in the marketplace. Regulation that provides broad requirements for honesty and truthfulness in commerce is generally considered to be supportive of an efficient and competitive economy, and, in the case of the *Electricity Safety Act*, a safer environment. These types of provisions acknowledge that both sides of the market equation, consumers and business, have a legitimate interest in maintaining and promoting honest dealing and fair competition in the marketplace.

Another function of consumer protection legislation includes the protection of consumers from sub-standard products and services by restricting the testing and certification of particular articles to suitably qualified and accredited authorities.

The *Electricity Safety Act* establishes a benchmark for the safety of electrical installations and appliances. This not only provides for the safety of consumers by minimising the likelihood of electric shock, burns and fire, it means that the safety of an appliance no longer has to be considered when purchasing such an item. This certainty reduces the cost to the consumer in that safety becomes a known factor, not one that needs to be assessed when deciding between the goods available.

On the one hand, the provisions of the *Electricity Safety Act* are precautionary measures: the Act is intended to protect people and property from an invisible energy source that drives many of things taken for granted in modern society. Consideration needs to be given to the qualifications of persons carrying out electrical wiring work, the origins of electrical appliances, who has vouched for their safe use, the quality of any repair work carried out on them, the integrity of the installation used to connect those appliances to the power supply. On the other hand, the nationally-consistent licensing regime, the availability of Australian and international standards covering manufacturing, labelling and many other matters, plus the growing awareness of consumer protection issues, the increasing incidence of legal action, and the trend towards self-regulation may diminish the desirability of government regulation in this area.

One of the purposes of this review of the Act is to consider present day marketplace issues and whether regulatory intervention is still warranted in order to achieve the objectives of the legislation.

Issue 3.1 National Competition Policy and market theory

3.1.1 What problems do consumers and traders face in relation to electricity safety in the marketplace?

3.1.2 Which of these should government appropriately address?

3.2 Objectives of the Act

The Competition Principles Agreement requires that this review consider and clarify the objectives of the *Electricity Safety Act 1945*. The objectives may be identified from a number of sources, such as:

- the legislation directly;
- second reading speeches;
- subordinate legislation;
- management plans and annual reports;
- ministerial statements; and
- the actions, impacts or evidence of those affected by the legislation.⁶

The Minister for Energy of the time enunciated the general objective of the current Act in 1995. The Minister's second reading speech explained that the provisions that enabled the distribution of electricity would be transferred from what was then known as the *Electricity Act 1945* to the *Electricity Supply Act 1995*. One of the effects of this was that: 'All provisions of the existing *Electricity Act 1945* relating to matters of electrical safety and accident reporting will be preserved within that Act, with the intention of renaming the *Electricity Act* the *Electricity Safety Act*.'

The statement at the beginning of the Act reads: 'An Act to provide for the development of electricity supply; to confer certain powers, authorities, duties and functions on the Energy Corporation of New South Wales; to provide for the regulation of the sale and hiring of electrical apparatus; to amend the *Local Government Act 1919* and certain other Acts in certain respects; and for purposes connected therewith.'

The Act encourages and promotes safe practices in the generation, supply and use of electricity, and establishes minimum safety requirements for the sale and hire of electrical equipment. Specifically, the Act seeks to achieve electricity safety through:

- promotion of standards for the plant used to generate and distribute electricity and guidance for electricity authorities engaged in this activity;
- inspection, testing and approval requirements for the legal sale and hire of electrical equipment.
- general electricity safety requirements associated with the generation, transmission, distribution and use of electricity and electrical articles, including requirements for accident reporting and investigation.

It is reasonable to say that the legislation aims to encourage and promote safe practices in the generation, supply and use of electricity. This may be interpreted as the objective of the *Electricity Safety Act 1945*.

⁶ Guidelines for NCP Legislation Reviews, Centre for International Economics, p.29.

The National Competition Council (NCC) guidelines⁷ state that clarification of the Act's objectives will require:

- assessing if all objectives are consistent with each other and with other policy objectives of government;
- assigning priorities between competing objectives by identifying the means and ends hierarchy between them;
- determining whether the objective now being pursued is the original objective targeted when the legislation was first promulgated and, if not, determining the appropriateness of the objective;
- assessing whether the objectives are focused, practical in terms of ability to be monitored and tested, and achievable;
- assessing whether the objectives being pursued are relevant in terms of contemporary economic problems, challenges and community attitudes:
 - asking stakeholders whether the stated objectives are sensible,
 - judging whether taxpayers and consumers would endorse the objectives,
 - judging whether objectives reflect the NCP; and
- determining whether objectives should be:
 - modified,
 - reprioritised,
 - deleted,
 - augmented, or
 - accepted.

To assist with assessing whether the objectives of the Act are still appropriate, the following subsection outlines some of the issues with which the *Electricity Safety Act* is concerned.

3.2.1 Accidents and property damage

Electricity is a useful but invisible and lethal resource that can kill without warning. Faulty electrical equipment, defective installations, the incorrect use of electrical articles and poor work practices all have the potential to cause damage to life, property and the environment.

Every year, people sustain injuries caused by equipment and installations regulated by the *Electricity Safety Act*, ranging from mild shocks to severe burns and death. Fires caused by electrical accidents result in millions of dollars worth of damage to residential and commercial buildings, other property and vegetation.

The most common electric shock-related injury is a burn. Burns suffered in electrical accidents may be of three types:

1. Electrical burns are the result of the electric current flowing through tissues or bone. Tissue damage is caused by the heat generated by the current flow through the body.
2. Arc or flash burns are the result of high temperatures near the body and are produced by an electric arc or explosion.

⁷ Guidelines for NCP Legislation Reviews, Centre for International Economics, p.32.

3. Thermal contact burns are those normally experienced when the skin comes in contact with hot surfaces of overheated electric conductors, conduits, or other energised equipment. Additionally, clothing may be ignited in an electrical accident and a thermal burn will result.

All three types of burns may be produced simultaneously.

A severe electrical shock can cause considerably more damage to the body than is visible. For example, a person may suffer disruption to heart rhythm, internal haemorrhages and destruction of tissues, nerves, and muscles, possibly ending in death. In addition, shock is often only the beginning in a chain of events. The final injury may well be from a fall, cuts, burns, or broken bones.

In addition to shock and burn hazards, electricity poses other dangers. For example, when a short-circuit occurs, hazards are created from the resulting arcs. If high current is involved, these arcs can cause injury or start a fire. Extremely high-energy arcs can damage equipment, causing fragmented metal to fly in all directions. Even low-energy arcs can cause violent explosions in atmospheres that contain flammable gases, vapours, or combustible dusts.

Fatal accidents⁸

The Department of Fair Trading is notified when serious accidents occur to consumers, electrical contractors and employees of electricity distributors. An analysis of the data collected since 1994 indicates that consumer equipment is the cause of an average of 72% of electrocutions in New South Wales, although equipment failure is to blame on average only 22% of the time. The majority of electrocutions are due to misused or damaged electrical equipment. Only one death was reported as being due to faulty equipment in 1998/99, that is, one death in the year was caused by an electrical article that apparently failed to meet the required standard.

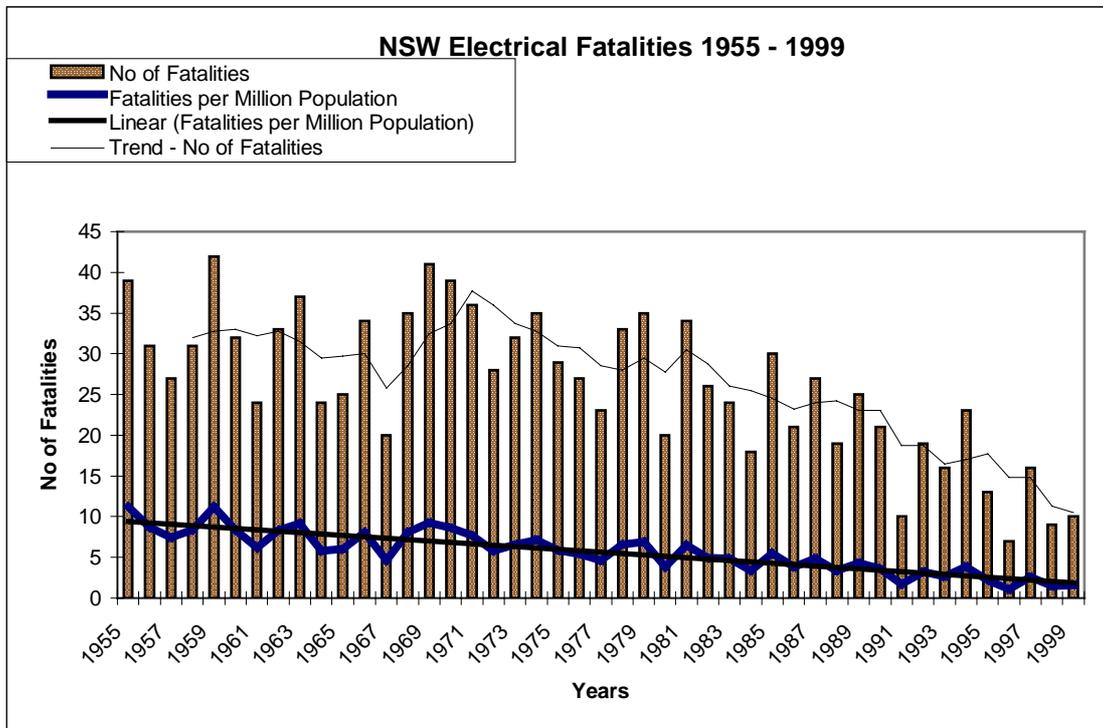
The following table, collated and published by the Electrical Regulatory Authorities Council (ERAC), shows total electrocutions by Australian jurisdiction.

Total electrical fatalities 1995/96 – 1998/99

Region	Population	Fatal electrocutions				Fatalities per 1,000,000				
		95/96	96/97	97/98	98/99	95/96	96/97	97/98	98/99	average
ACT	308,700	0	0	0	0	0.00	0.00	0.00	0.00	0.00
NSW	6,384,300	13	9	17	9	2.10	1.43	2.69	1.41	1.91
NT	191,400	0	2	0	2	0.00	10.69	0.00	10.45	5.29
QLD	3,485,200	9	20	11	11	2.70	5.88	3.16	3.16	3.73
SA	1,490,400	2	2	2	3	1.36	1.35	1.35	2.01	1.52
TAS	471,100	4	0	1	0	8.43	0.00	2.10	0.00	2.63
VIC	4,689,800	10	8	4	7	2.19	1.74	0.87	1.49	1.57
WA	1,847,800	6	5	3	5	3.40	2.78	1.65	2.71	2.64
Aust	18,871,800	44	46	38	37	2.40	2.48	2.03	1.96	2.22
NZ	3,804,000	3	12	3	10	0.82	3.23	0.81	2.639	1.87
Total	22,675,800	47	58	41	47	2.14	2.61	1.83	2.07	2.16

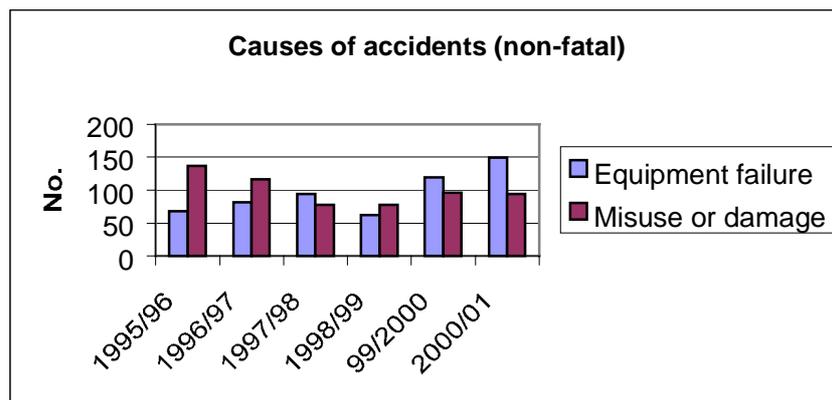
⁸ All data exclude electrocutions due to suicide or on traction systems, mining sites & ships.

As can be seen, the incidence of fatalities (the rate of deaths per million people) from contact with electricity in New South Wales is amongst the lowest compared with the other Australian jurisdictions and New Zealand. The following graph shows the historical trend of reported electrocutions in New South Wales.

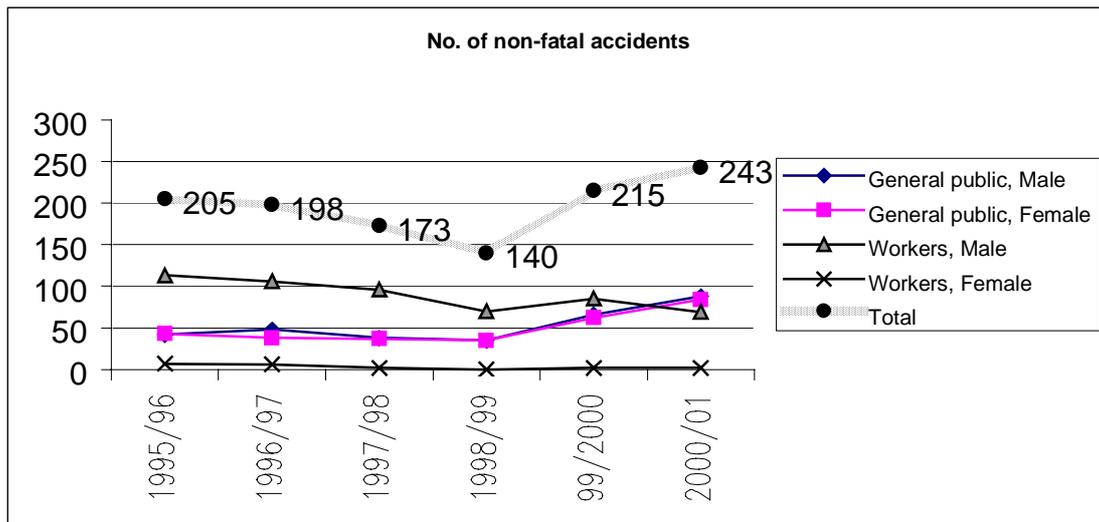


Non-fatal electrical accidents

Consumer equipment accounts for 70% of the serious, non-fatal electrical accidents notified to the Department of Fair Trading. Unlike the fatality statistics, however, equipment failure accounts for nearly half of the accidents, on average.



The following chart shows the number of non-fatal electrical accidents in New South Wales from 1995/96 – 2000/01.



The number of accidents involving male electrical contractors and other technicians has decreased in this period by nearly 50%, however, accidents are often occurring because of unsafe work practices. These include failure to properly isolate the electricity supply or wear appropriate protective equipment.

The number of accidents experienced by the general public, both male and female, has been increasing, although this may be due to improved reporting practices, rather than an actual increase in occurrences. Many of these accidents are taking place in bathrooms and laundries, areas that tend to be small and are often insufficiently ventilated. Equipment failure may occur under these circumstances, as water seeps into equipment and onto wiring, although this could be due to unusually high levels of moisture in the atmosphere rather than poor manufacturing standards.

Fires and property damage in NSW⁹

In 1998/1999, some 1,355 (4.5%) of the 30,157 fires across the State reported by the NSW Fire Brigade were known to have been ignited by short-circuits or other electrical faults. Short-circuits and other electrical faults are also reported as being to blame for 9% of building and mobile property fires and 2% of other fires. The estimated value of damage to buildings caused by electrical failures was \$17,417,000, which equals approximately 11% of the value of property destroyed by fire in NSW in 1998/99.

Some of the sources of ignition of these fires included:

Ignition type	No. of fires	\$'000 loss of buildings
Unspecified short-circuit arc	727	5,359
Short-circuit arc from defective or worn insulation	272	3,074
Arc from faulty contact, loose connection, broken conductor	101	197
Heat from improperly operating electrical equipment	99	1,448
Arc, spark from operating equipment or switch	78	977
Fluorescent light ballast	21	3,211
Total	1,298	14,266

⁹ New South Wales Fire Brigade Annual Statistical Report 1998/99.

The types of electrical equipment that caused fires during 1998/99 include:

Equipment	No. of fires	Equipment	No. of fires
Fixed wiring	195	Fans: portable, ceiling, exhaust	41
Air conditioning and refrigerators	136	Switches, receptacle or outlet	31
Dryers	121	Cords and plugs	29
Lighting fixtures, lamp holders, ballast, signs	104	Dishwashers	28
Portable room heaters	104	Lamps and light bulbs	28
Televisions	65	Hand tools	18
Electric blankets	57	Computer equipment	14
Washing machines	56	Telephones and transmitters	11
Water heaters	51	Radios	10
Meters or meter boxes	42	Stereos, tape recorders, cd players	9

Issue 3.2 Clarification of the Act's objectives

- 3.2.1** Do the objectives of the legislation sufficiently cover all the relevant issues? If there have been technical or market changes in the last few years that make the objectives more or less relevant, what other issues should the objectives aim to address?
- 3.2.2** Are the provisions of the legislation consistent with the objectives? Are there any conflicts or contradictions?
- 3.2.3** Do you think that the objectives are focussed, capable of being monitored, tested and achievable?
- 3.2.4** Should the objectives be modified, reprioritised, reduced or expanded?
- 3.2.5** Is there any objective or any part of an objective in any of the legislation that is best addressed in some other existing legislation or if necessary, in some other new legislation?
- 3.2.6** Does any objective in the legislation have a negative impact on other Government objectives, such as in the areas of occupational health and safety, occupational licensing, public health or safety and the environment?

4 Issues for consideration

This section of the issues paper will examine the key, potentially anti-competitive provisions of the *Electricity Safety Act 1945*, their effectiveness and the consequences for competition.

4.1 Effects of the Act on competition

There are a number of ways that legislation can restrict competition and innovation.

The NCC¹⁰ has suggested that legislation may limit competition if it:

- governs the entry or exit of firms or individuals into or out of markets;
- controls prices or production levels;
- restricts the quality, level or location of goods and services available;
- restricts advertising and promotional activities;
- restricts price or type of input used in the production process;
- is likely to confer significant costs on business; or
- provides advantages to some firms over others.

The provisions of the *Electricity Safety Act* may restrict competition in the marketplace by:

1. requiring manufacturers and suppliers of electrical articles to comply with particular Australian and international standards;
2. requiring manufacturers and suppliers of electrical articles to apply for approval and certification and apply appropriate labelling or marking before permitting the sale of certain electrical articles;
3. confining the authority to issue Certificates of Approval and Certificates of Suitability to the Director-General of the Department of Fair Trading and whomever the Minister for Fair Trading approves; and
4. restricting work on electrical installations to appropriately qualified persons.

The *Electricity Safety Act* applies to the Energy Corporation of New South Wales, each electricity distributor in the State, the NSW Treasury, persons or firms who approve, design, manufacture or sell (within the definition of 'sell' in section 20¹¹ of the Act) electrical articles, persons carrying out electrical wiring work, anyone who has or uses any sort of equipment related to the generation, transmission or distribution of electricity and consumers of electricity using electrical installations.

Costs imposed by legislation are usually passed down the line to the consumer in the form of higher prices or lower quality. The question that needs to be considered in this review is whether the costs borne by business and the community are reasonable given the benefits provided. Regulatory processes should be designed to minimise the

¹⁰ National Competition Council Legislation Review Compendium, 3rd Edition, December 1999.

¹¹ Under s. 20, 'sell includes (a) auction or exchange, (b) offer, agree or attempt to sell, (c) advertise, expose, send, forward or deliver for sale, (d) cause or permit to be sold or offered for sale, (e) hire or cause to be hired, and (f) display for sale or hire.'

costs of administration to government and of compliance by individuals and businesses.

The restrictions and costs imposed by the *Electricity Safety Act* are discussed briefly below.

4.1.1 Compliance with standards

The Act requires that certain electrical work meet standards which may be detailed in subordinate legislation.

Section 37 of the Act, amongst other things, empowers the Governor of New South Wales to prescribe standards and rules that regulate electrical work, for both electrical installations and electrical articles¹². These standards may cover matters including:

- electrical articles and the materials used for their manufacture;
- the voltages to be maintained at the terminals of consumers of electricity;
- the installation, alteration, repair or renewal of electric wires, cables, appliances, meters, fittings, insulators, or apparatus at any place or premises; and
- electrical installations and other equipment used for or in connection with the generation or supply of electricity (other than by Pacific Power) and for materials used in the manufacture of such equipment, and the adoption of engineering standards for such installations, equipment and materials.

In addition:

- the Energy Corporation has the power to regulate the adoption of standards of plant, equipment, frequency and voltage for the generation, transmission, distribution and supply of electricity (section 9(1)(a)); and
- the Director-General of the Department of Fair Trading may specify the classes and types of electrical articles to which the Act applies (section 20(1)).

The costs associated with meeting standards include:

- training of personnel to gain knowledge of standards;
- purchase of prescribed standards (eg relevant documents published by Standards Australia);
- acceptable facilities and procedures for the production and distribution of electricity;
- acceptable design and production of electrical articles; and
- testing of articles to establish compliance.

Unless the prescribed standards are met, electricity may not be supplied, electrical installation work may not be carried out and electrical articles may not be sold, hired, or represented as being for sale or hire, whether new or second hand. This may have an impact on the number of electricity producers and distributors, restrict the electrical work that may be done and prevent the sale or hire of certain electrical articles.

¹² The complete regulation-making powers of the Governor are reproduced in Appendix 3.

4.1.2 Testing, approvals, certification and labelling

The Act requires that specific electrical work and articles be tested, approved, certified and in some cases marked as having met prescribed standards. These are types of work and articles that are considered to be particularly hazardous.

The Act provides for a regime for the testing, approval, certification and marking of declared electrical articles in section 21A.

Some manufacturers and distributors also choose to have articles that are not declared tested and certified under a voluntary scheme operated by the Department of Fair Trading.

The certificates of approval for declared articles issued by the Department of Fair Trading expire after five years. Technically, if that approval is not renewed and the article is not appropriately marked (or the article is recalled), it is illegal for the article to be sold, hired, or represented as being for sale or hire – whether new or second-hand.

Similarly, it is illegal to sell, hire, or represent as for sale or hire any electrical article that does not meet the current relevant Australian Standard. Many second-hand articles may be being sold or hired illegally as a result. An exception to this is second-hand television receivers, which have been exempted from those provisions of the Act, subject to certain conditions, which include that the model was first sold before 1 July 1998, has not been subject to recall, and that the receiver currently complies with the relevant Australian standard.¹³

Historically, the administering authorities have recognised the costs and difficulties of complying with and enforcing section 21A of the Act. As a result, section 21A has generally not been enforced against pawnbrokers, second-hand dealers and hire firms that deal with second-hand electrical articles.

In addition, an anomaly exists with regard to the marking of declared articles, particularly in relation to imported items. A mark of approval is issued by the relevant authority to the distributor of the item, who ensures that the mark appears on each of those articles imported into New South Wales. The anomaly occurs when a second importer brings exactly the same article (that has been approved and for which a mark has been issued to the first distributor) into the State, but the second importer has not applied for or received a mark of approval for the articles. Under these circumstances, the electrical articles meet the required minimum safety standards and have been tested, approved and certificated by a relevant authority, but not marked as required under the Act. This is because the approval marking is issued to the supplier who has applied and paid for the product to be tested and approved. The marking may be used only by that applicant, and does not automatically apply to all of those articles in existence. A parallel importer of the same article, who has not been issued with the mark of approval, is in breach of the Act.

¹³ The order exempting television receivers from the operation of section 21A(1) of the Act ceases to have effect after 30 June 2007.

The costs associated with testing, approval, certification and labelling regimes include:

- fees charged by the testing/approving authority;
- any corrective action required after testing; and
- printing/marketing costs.

Without these approvals and marks or labels, declared articles may not be sold or hired. This may impede the creative expressions of the designers of declared articles and curtail the product ranges of manufacturers and distributors, as well as restricting the range of products available to the public.

In the case of electrical installations, the costs of examining and testing of equipment that is used by, or intended to be used by an electricity supply authority or electricity supplier, include the time taken and loss of income whilst the apparatus is out of commission.

4.1.3 Authority to issue certificates

The Act limits the authority to issue certificates of approval and certificates of suitability to the Director-General of the Department of Fair Trading and whomever the Minister for Fair Trading approves (s. 21A(1)(a)(ii)).

At present, only one other organisation (Quality Assurance Services Pty Ltd) is approved under section 21A(1)(a)(iii) to issue these certificates. Neither the Act nor the Regulations specify procedures for approving an authority to issue certificates.

The costs associated with restricting who may issue certificates under the Act include:

- preventing firms from entering the certification market; and
- providing a financial advantage and associated reputation to one company at the expense of others.

This restriction makes it difficult for other businesses to develop and operate certification schemes that are valid in New South Wales.

Certification in Victoria

Victorian legislation (s. 57(2) of the *Electricity Safety Act 1998*) permits the sale or supply of prescribed electrical equipment if it has been:

- approved by the Office of the Chief Electrical Inspector and marked as prescribed; or
- approved by a prescribed authority (equivalent government authorities in other jurisdictions) or deemed as approved under the regulations; or
- certified in accordance with a prescribed method or prescribed process.

Under the Victorian *Electricity Safety (Equipment) Regulations 1999* (cl. 17), a prescribed method or process is an electrical equipment safety certification system that is conducted:

- a. by an electrical equipment safety certification body accredited under the Joint Accreditation System of Australia and New Zealand (JAS-ANZ); and

b. in accordance with Australian /New Zealand Handbook ‘*Guide 65 - General requirements for bodies operating product certification systems, SAA/SNZ HB18.65:1998*’ published jointly by Standards Australia and Standards New Zealand on 5 February 1998, as amended from time to time.

JAS-ANZ is a non-profit, self-funding international organisation established in 1991 under a treaty between the Governments of Australia and New Zealand. It acts as the joint accreditation body for Australia and New Zealand for the certification of management systems, products and personnel. In 1996 JAS-ANZ was declared to be an international organisation under the *Australian International Organizations (Privileges and Immunities) Act 1963*.

4.1.4 Qualifications

In New South Wales, electrical work within the meaning of the *Electricity Safety Act 1945*, ie the actual physical work of installing, repairing, altering, removing or adding to an electrical installation and the supervising of that work, may only be carried out by holders of an appropriate licence or registration certificate (if properly supervised) under the *Home Building Act 1989*.

Section 25 of the Act permits persons authorised by the Director-General of the Department of Fair Trading to require that someone claiming to be an electrical contractor can prove their claim. An authorised person may also require that others who appear to be carrying out electrical wiring work can prove that they are not prohibited from doing that work – a provision intended to cover apprentices and others persons who are carrying out work under appropriate supervision.

The costs associated with meeting qualification requirements include:

- training in both theoretical and practical work; and
- licence fees.

Unless the appropriate qualification is held (or an appropriately qualified person is instructing and supervising), electrical wiring work may not be done. This restriction means that unqualified persons may not work on electrical installations, including home do-it-yourself jobs, which are connected to 240V supply. However, any person may do electrical work on self-standing 240V electrical installations powered by a generator, windmill or solar panels.

Issue 4.1 Consider all or some of the following questions in relation to the restrictions that may be imposed by the legislation.¹⁴

4.1.1 Entry or exit

Does the legislation:

1. create or protect a single buyer or seller?
2. limit the number of operators through licences?
3. allow licences to be freely traded?
4. restrict new competitors with similar products entering the market?
5. restrict who can own or operate a business?
6. restrict entry of products or services from other parts of Australia?

4.1.2 Controls on price or production

Does the legislation:

1. limit the size of operation?
2. limit what products a firm may produce or trade?
3. affect the location of where a business may operate?
4. affect in any way the price that would otherwise be determined by the market?

4.1.3 Quality

Does the legislation:

1. impose quality standards?
2. restrict any range of quality from the market?
3. force different qualities into different markets?

4.1.4 Advertising

Does the legislation:

1. limit how a product and/or service may be promoted?

4.1.5 Type of inputs

Does the legislation:

1. require particular methods of production?
2. require use and purchase of inputs from a specified supplier as a condition of operation?
3. limit access to important infrastructure?
4. prevent the adoption of innovative methods of production and/or marketing?
5. require specific terms for employment different from national standards?
6. interfere in the setting of input prices?

4.1.6 Significant costs

Does the legislation:

1. impose any specific imposts, which are not levied on all other industries?
2. impose high administrative or compliance costs?

4.1.7 Discriminating advantages

Does the legislation:

1. advantage one firm over another?
2. advantage government over the private sector?
3. provide infrastructure access to one firm but not another?
4. restrict consumer access?
5. benefit one group of consumers over another?

¹⁴ Adapted from Guidelines for NCP Legislation Reviews, Centre for International Economics, p.35

5 Cost-Benefit Analysis

This section discusses some of the costs imposed by the *Electricity Safety Act* and some of the benefits it provides. A number of these matters have been examined in previous sections of the issues paper. Certain costs and benefits may be easily quantified or estimated, whilst others may be easily identified with no attributable dollar value.

5.1 Economic costs

The economic costs associated with electricity safety are taken to be the quantifiable or estimable costs normally associated with buying and selling the relevant goods and services. In the case of electrical consumer goods and installations, these may include the costs to manufacturers and/or suppliers when a product is found to be faulty, the value of goods and other property damaged by faulty articles or installations, medical and workers' compensation payments and loss of productivity, whether in the home or at work.

In addition, the cost of administering the *Electricity Safety Act* and Regulations, including inspectors, approval and certification procedures and associated services and support, must be taken into account.

Many, if not all, of these costs are ultimately borne by the consumers as costs to industry and government are passed on.

5.1.1 Accidents, compensation and lost productivity

Most of the accidents in New South Wales caused by contact with electricity occur to young or middle-aged males. These are generally working men, with (or with the potential to have) families and other responsibilities.

1998/99 workers' compensation data¹⁵ from the WorkCover Authority of New South Wales provide a partial picture of the costs to individuals, employers and the community from accidents due to electrical appliances and installations. The costs include payment for initial treatment, rehabilitation, devices for walking or home alterations required in some cases, compensation payments for lost earnings, physical incapacities, lives, grief, and the cost of time and productivity lost to the workplace. All these costs are also applicable when such accidents are not work-related, but are not as easily measured.

In 1998/99, the non-fatal injuries to workers from electrical products and installations notified to the Department of Fair Trading constituted c. 0.17% of the total workplace injuries reported by WorkCover¹⁶. The imputed gross incurred cost for these injured workers was \$1,452,152. By extension, it is estimated that the annual incurred cost to the community for each injured person reported to the Department of Fair Trading is \$20,745. The annual costs to the community are estimated as follows:

¹⁵ 1998/99 information was the most recent data available at the time of preparing this paper.

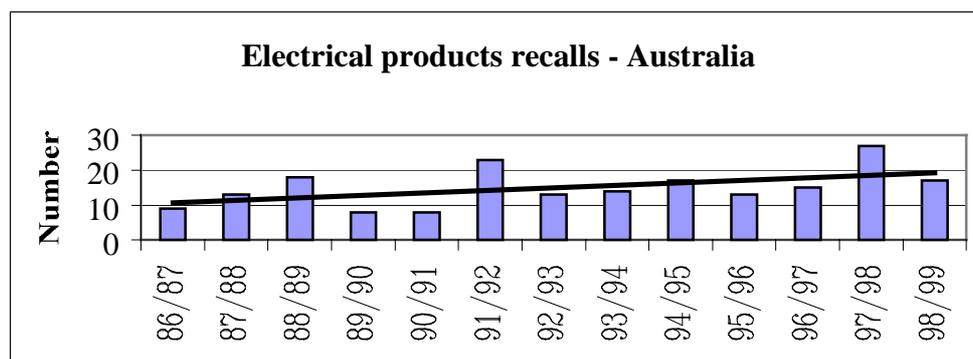
¹⁶ The injuries to electrical and electronic tradespersons notified to WorkCover include incidents unrelated to electrical articles and installations. Given the difficulty in extracting data purely relevant to matters relating to the *Electricity Safety Act*, figures based on average data have been used.

	Total non-fatal injuries ¹⁷	Gross incurred cost ¹⁸
1995/96	205	\$4,252,725
1996/97	198	\$4,107,510
1997/98	173	\$3,588,885
1998/99	140	\$2,904,300
99/2000	215	\$4,460,175
2000/01	243	\$5,041,035

Estimates of the cost of a death may be based on a person’s age, including the value of lost production, health care, administrative costs associated with death, and in some cases, the value of the grief, pain and loss to those still living. Estimated values range from less than one million dollars to \$7.1 million¹⁹.

5.1.2 Product recalls

The number of electrical products recalled (see the graph²⁰ below) has slowly been increasing in Australia. This could be due to a fall in manufacturing standards of local or imported products, but may also be accounted for simply by the proportionate increase in defects to the growing number of products available.



Recalling any product involves a number of costs to the manufacturer and/or supplier, including (depending on the product):

- advertising;
- transportation or postage;
- replacement or repair; and
- loss of good will.

¹⁷ Total relevant non-fatal injuries as reported to the Department of Fair Trading.

¹⁸ WorkCover defines gross incurred cost as the sum of payment plus an estimate of future liability if the claim is still open at the end of the current financial year.

¹⁹ To include economic and non-economic factors, the average value of a human life in Australia may be estimated at \$3.6 million, which corresponds to the lower estimated value of human life used by some British Government agencies (£1 million - £3 million), as well as various estimates of the average total economic loss to a family in the USA for persons aged between 30- 49 years (US\$1.6 million) and US court awards for wrongful death.. An average of 13 people per year died in New South Wales over the past six years from accidents involving electrical consumer and network equipment. Of these, an average of 2.8 deaths per year was due to faulty appliances or installations, the remainder of the related fatalities being due to failures under other legislation, including the Electricity Supply Act 1995 and the Occupational Health & Safety Act 1983. The cost of lives lost per annum can be said to be \$10,080,000.

²⁰ Data supplied by the Commonwealth Department of the Treasury.

Consumers may also incur costs associated with product recalls, including:

- transportation or postage;
- inconvenience; and in many cases
- purchase of a replacement article, rather than taking/sending the original back.

Types of electrical products subject to recall over recent months include computer notebooks, air conditioning units, night lights, modems, lamps, electric drills and liquid level controls.

Public safety warnings may also be published by the Minister in cases when the company that sold the product no longer exists and a recall is not possible. (The Fire Brigade also issues warnings about electrical appliance safety issues.)

The costs to manufacturers, suppliers and consumers associated with the recall of electrical articles will vary according to the type of product, how many and where they were distributed. It can, however, be assumed that the cost of recalling even a relatively small number of a simple product will run to several thousand dollars.

5.1.3 Property damage

According to data from the NSW Fire Brigade, described in Chapter 3 above, property in New South Wales to the value of c. \$17.5 million was destroyed during 1998/99 because of fires started by articles that fall under the *Electricity Safety Act*.

5.1.4 Administration²¹

The Department of Fair Trading carries out an estimated 41% of the approvals and certifications of relevant electrical articles in Australia. Revenue from these activities amounts to approximately \$700,000 per annum. It costs approximately \$1,226,000 to operate the Electrical Safety Unit, which is also responsible for compliance work. There are additional costs associated with the inspections of home installations by the Department's Home Building Investigation Branch and the functions of the Ministry of Energy and Utilities.

5.2 Benefits

Given the history of the Act, the objectives of the legislation have evolved from creating the infrastructure required to distribute electricity throughout New South Wales to making it safe for consumers to use electricity. The creation of the *Electricity Supply Act 1995* removed most of the provisions dealing with the electricity supply industry, although a number of sections relating to these agencies remain in the legislation.

If consumer protection is the objective of the Act, the statistics cited earlier would seem to indicate that the reasons for having electricity safety legislation, ie the number of accidents involving life and property are measurable. The benefits of the legislation are more difficult to assess. How can one measure the number of people who were not killed or injured, or the number of fires that did not start and the amount of property not damaged as a result of the operation of the Electricity Safety Act?

²¹ Data supplied by the Department of Fair Trading's Financial Operations Branch.

5.3 Summary

In any one year, millions of dollars are lost in terms of life, property and productivity. Families suffer trauma and loss, and businesses face additional costs to recall faulty products or to rehabilitate or recruit staff.

The basic annual cost to the business community and the New South Wales Government for testing declared articles and administering the legislation is estimated at approximately \$2,500,000.

The number of lives saved, the amount of property undamaged and the number of businesses able to continue operating due to the application of the *Electricity Safety Act 1945* to electrical articles and installations is incalculable.

Issue 5.1 Cost-benefit analysis

- 5.1.1** Have all the costs associated with the *Electricity Safety Act 1945* been identified?
- 5.1.2** Have all the benefits associated with the *Electricity Safety Act 1945* been identified?
- 5.1.3** Is there a net public benefit from retaining the Electricity Safety Act?

6. Options

Competition plays a key role in driving efficiency and enhancing community welfare, however, unregulated markets do not always operate in a sufficiently competitive, efficient or equitable manner. Regulation can help markets work by enhancing their efficiency and integrity. At the same time, regulatory frameworks need to be flexible so as not to impede innovation and competition.

The Competition Principles Agreement requires that this review consider alternative means for achieving the objectives of the *Electricity Safety Act*, including other legislation with equivalent or similar provisions and non-legislative approaches.

If it is determined that government action is warranted, the National Competition Policy, the *Subordinate Legislation Act 1989* and other policies aimed at reducing the level of regulation in society require that a detailed assessment be made of the expected impact of the proposed laws. As well, market-based alternatives to legislation must be identified and considered. The costs and benefits of each option must be assessed and the option that provides for essential consumer protection without unnecessarily imposing restrictions on industry should be implemented.

The following options are suggestions only. The list is not exclusive and none represents the preference of this review's steering committee or the Government.

6.1 Option one – Status quo

The primary objectives of the legislation would remain unchanged, as would the requirements that have been identified as restricting, or potentially restricting competition. Declared articles would still have to be approved, all electrical articles would be required to meet legislated standards, and working on electrical installations would remain restricted to people with appropriate qualifications.

Should it be agreed nationally that the declared article regime covers too many products (see section 2.5 Review of declared articles), a minor variation of the current system would be necessary. It may be considered necessary to declare a small number of articles, for which approval would still be required. The remainder would no longer require third party certification, although the voluntary certificate of suitability system would remain in place. (The New Zealand model proposes to have only four declared articles and evidence of compliance with agreed standards to be produced if the safety of an electrical article is challenged.)

The costs and benefits would continue in the same vein as described in Chapter 5.

Issue 6.1 *Option one – Status quo*

- 6.1.1** Are the objectives of the *Electricity Safety Act 1945* relevant and are these objectives being met?
- 6.1.2** To what extent are the restrictions on competition imposed by the Act acceptable to consumers and traders?
- 6.1.3** What would be the benefits of retaining the Act in its current form?
- 6.1.4** Would these benefits outweigh the costs of the legislation?

6.2 Option two – Modification

The legislation could be modified to completely remove the requirement to certify declared articles, instead making available only voluntary certificates of suitability or conformance.

Electrical articles would still be required to meet Australian standards, and the only cost saving in this regard would be to remove the requirement to have third party testing. Certification would become a matter of choice, and might bring associated savings of perhaps \$2,000,000 per annum to both industry and government.

Manufacturers and distributors who are found to be in breach of the legislation might first be cautioned and fined. If they persistently sell or hire substandard products, not only could those articles be banned, but the trader could be banned from working in that industry, either for a specified time or for life. The Department would keep a register of banned products and traders, in this scenario.

A difficulty with this option could be a loss of the confidence that consumers have in the declared article regime. Currently, declared articles carry a mark or tag that guarantees compliance with the legislation. Without the declared article system, manufacturers and suppliers will no longer be able to show that electrical products, previously known to have caused problems, have been approved by government authorities or their agents. Voluntary certificates of approval may simply take the place of the old certifications, with little or no net financial advantage.

Another modification could be to introduce a wiring work regime similar to that in New Zealand, described in Chapter 2 above. Under this system, any competent person could do consumer electrical wiring work, so long as the home installation has been isolated from the electricity supply and it is checked by a qualified person before reconnection. The definition of a qualified person would also be extended to include engineers.

Issue 6.2 Option two – Modification

- 6.2.1 How could provisions of the Act be modified or re-written so that it is less prescriptive and yet achieve the relevant objectives?
- 6.2.2 How would these changes justify retention of the legislation?
- 6.2.3 What would be the benefits of this option?
- 6.2.4 Would these benefits outweigh the costs of the legislation?
- 6.2.5 What are the implications for the national approval system?

6.3 Option three – Centralised regulation

All jurisdictions follow a uniform scheme for the approval of declared articles, and all require other electrical articles to comply with agreed Australian standards. Similarly, all jurisdictions require that electrical installation work be performed by suitably qualified persons, whilst vocational training and licensing systems are becoming increasingly uniform across the nation. In addition, the Consumer Affairs Division of the Commonwealth Treasury already co-ordinates national product recalls.

Given the national consistency of these associated matters, it should be possible for the relevant elements and powers of the *Electricity Safety Act* (and its equivalent legislation in other States and Territories) to be transferred to the Commonwealth Government. This would require a major and lengthy consultation process, however, if agreed, would mean:

- ensuring nationally consistent legislation, ie a single Act that is applicable in all jurisdictions;
- manufacturers and suppliers need apply for approval to only one authority (where several may be necessary at present);
- one decision-making body would consider proposed changes to legislation, the list of declared articles or the application of Australian standards; and
- administrative processes and associated costs duplicated across the jurisdictions would be diminished.

Provisions of the Act that relate to functions of the Energy Corporation of New South Wales could be transferred to legislation administered by the Ministry of Energy and Utilities at the same time.

Issue 6.3 *Option three – Centralised regulation*

6.3.1 What would be the benefits over the current system of a system of “mirror” legislation with all jurisdictions having basically the same legislation and a central (Commonwealth Government) body taking responsibility for administration of electrical safety legislation?

6.3.2 Why would retention of the present State/Territory system be preferable?

6.4 Option four – Deregulation

Under this option, the main control over the safety of electrical articles would be the marketplace and action taken under the common law. Some products may still be banned under fair trading legislation, but meeting industry standards would be voluntary.

Occupational health and safety legislation would still cover aspects of electrical safety in work places and the licensing and misconduct provisions of the Home Building Act 1989 would continue to apply to electrical work. Electricity suppliers would remain bound by the safety standards of the Electricity Supply Act 1995 with regard to customer installations.

Under these circumstances, competition may control the quality of work to the advantage and the disadvantage of consumers. High quality products that are certain to meet or exceed voluntary standards and work processes that are guaranteed to adhere to best practices may be successful marketing tools. Notwithstanding, the temptation of reduced prices may also be difficult to resist for some, even though the result may be lower quality and potentially dangerous products and work practices. It is unlikely that the safety objectives of the Act would continue to be met as successfully as they are at present.

This option is similar to the approach to electrical safety that is taken in the United States of America. See Appendix 4 for details.

Issue 6.4 *Option four – Deregulation*

- 6.4.1** What would be the impact of repealing the *Electricity Safety Act*?
- 6.4.2** Would industry regulation take over the role of government?
- 6.4.2** What would be the benefits of this option?
- 6.4.3** Would these benefits outweigh the costs of the legislation?

A final comment

As previously noted, the aim of this issues paper is to stimulate public discussion about the aspects of the *Electricity Safety Act* that potentially restrict competition in the market place. Interested persons are invited to submit their views and comments on these issues, as well as raise any other relevant matters. The methods for submitting comments to the steering committee are on page 3.

All comments received will be considered by the steering committee.

The outcome of this review process will be a final report to the Minister for Fair Trading, which will outline how the review has been conducted and report on the submissions received. Based on the results of the public consultation process, the steering committee may also make recommendations to the Minister for any legislative changes considered to be necessary.

Should you require further information on the review process, please contact the project manager (details on page 3).

Appendix 1 Terms of Reference for the review

TERMS OF REFERENCE

Review of the *Electricity Safety Act 1945*

1. The review of the *Electricity Safety Act 1945* shall be conducted in accordance with the principles for legislation reviews set out in the *Competition Principles Agreement*. The guiding principle of the review is that legislation should not restrict competition unless it can be demonstrated that:
 - (a) the benefits of the restriction to the community as a whole outweigh the costs; and
 - (b) the objectives of the legislation can only be achieved by restricting competition.
2. Without limiting the scope of the review, the review is to:
 - (a) clarify the objectives of legislation and their continuing appropriateness;
 - (b) identify the nature of the restrictive effects on competition;
 - (c) analyse the likely effect of any identified restriction on competition on the economy generally;
 - (d) assess and balance the costs and benefits of the restrictions identified; and
 - (e) consider alternative means for achieving the same result, including non-legislative approaches.
3. When considering the matters in (2), the review should also:
 - (a) identify any issues of market failure which need to be, or are being addressed by the legislation, and
 - (b) consider whether the effects of the legislation contravene the competitive conduct rules in Part IV of the Trade Practices Act 1974 (C'th) and the NSW Competition Code.
4. The review shall consider and take account of relevant regulatory schemes in other Australian jurisdictions and any recent reforms or reform proposals, including those relating to competition policy in those jurisdictions.
5. The review shall consult with and take submissions from consumers, relevant industry associations, manufacturers of electrical products, importers and other interested groups.

Appendix 2 List of issues raised in the Paper

Issue 3.1 National Competition Policy and market theory

- 3.1.1** What problems do consumers and traders face in relation to electricity safety in the marketplace?
- 3.1.2** Which of these should government appropriately address?

Issue 3.2 Clarification of the Act's objectives

- 3.2.1** Do the objectives of the legislation sufficiently cover all the relevant issues? If there have been technical or market changes in the last few years that make the objectives more or less relevant, what other issues should the objectives aim to address?
- 3.2.2** Are the provisions of the legislation consistent with the objectives? Are there any conflicts or contradictions?
- 3.2.3** Do you think that the objectives are focussed, capable of being monitored, tested and achievable?
- 3.2.4** Should the objectives be modified, reprioritised, reduced or expanded?
- 3.2.5** Is there any objective or any part of an objective in any of the legislation that is best addressed in some other existing legislation or if necessary, in some other new legislation?
- 3.2.6** Does any objective in the legislation have a negative impact on other Government objectives, such as in the areas of occupational health and safety, occupational licensing, public health or safety and the environment?

Issue 4.1 Consider all or some of the following questions in relation to the restrictions that may be imposed by the legislation:

4.1.1 Entry or exit

Does the legislation:

1. create or protect a single buyer or seller?
2. limit the number of operators through licences?
3. allow licences to be freely traded?
4. restrict new competitors with similar products entering the market?
5. restrict who can own or operate a business?
6. restrict entry of products or services from other parts of Australia?

4.1.2 Controls on price or production

Does the legislation:

1. limit the size of operation?
2. limit what products a firm may produce or trade?
3. affect the location of where a business may operate?
4. affect in any way the price that would otherwise be determined by the market?

4.1.3 Quality

Does the legislation:

1. impose quality standards?
2. restrict any range of quality from the market?
3. force different qualities into different markets?

- 4.1.4 Advertising**
Does the legislation:
1. limit how a product and/or service may be promoted?
- 4.1.5 Type of inputs**
Does the legislation:
1. require particular methods of production?
2. require use and purchase of inputs from a specified supplier as a condition of operation?
3. limit access to important infrastructure?
4. prevent the adoption of innovative methods of production and/or marketing?
5. require specific terms for employment different from national standards?
6. interfere in the setting of input prices?
- 4.1.6 Significant costs**
Does the legislation:
1. impose any specific imposts, which are not levied on all other industries?
2. impose high administrative or compliance costs?
- 4.1.7 Discriminating advantages**
Does the legislation:
1. advantage one firm over another?
2. advantage government over the private sector?
3. provide infrastructure access to one firm but not another?
4. restrict consumer access?
5. benefit one group of consumers over another?
- Issue 5.1 Cost-benefit analysis**
- 5.1.1** Have all the costs associated with the *Electricity Safety Act 1945* been identified?
- 5.1.2** Have all the benefits associated with the *Electricity Safety Act 1945* been identified?
- 5.1.3** Is there a net public benefit from retaining the *Electricity Safety Act*?
- Issue 6.1 Option one – Status quo**
- 6.1.1** Are the objectives of the *Electricity Safety Act 1945* relevant and are these objectives being met?
- 6.1.2** To what extent are the restrictions on competition imposed by the Act acceptable to consumers and traders?
- 6.1.3** What would be the benefits of retaining the Act in its current form?
- 6.1.4** Would these benefits outweigh the costs of the legislation?
- Issue 6.2 Option two – Modification**
- 6.2.1** How could provisions of the Act be modified or re-written so that it is less prescriptive and yet achieve the relevant objectives?
- 6.2.2** How would these changes justify retention of the legislation?
- 6.2.3** What would be the benefits of this option?
- 6.2.4** Would these benefits outweigh the costs of the legislation?
- 6.2.5** What are the implications for the national approval system?

Issue 6.3 ***Option three – Centralised regulation***

- 6.3.1** What would be the benefits over the current system of a system of “mirror” legislation with all jurisdictions having basically the same legislation and a central (Commonwealth Government) body taking responsibility for administration of electrical safety legislation?
- 6.3.2** Why would retention of the present State/Territory system be preferable?

Issue 6.4 ***Option four – Deregulation***

- 6.4.1** What would be the impact of repealing the *Electricity Safety Act*?
- 6.4.2** Would industry regulation take over the role of government?
- 6.4.2** What would be the benefits of this option?
- 6.4.3** Would these benefits outweigh the costs of the legislation?

Appendix 3 Regulation-making powers

The Governor of New South Wales may make regulations on matters that are necessary or convenient for carrying out or giving effect to the *Electricity Safety Act*. These matters appear in section 37 of the Act, as follows:

- (2) Without prejudice to the generality of the power conferred by subsection one of this section regulations may be made for or with respect to:
- (a) the keeping by electricity supply authorities of such books, accounts and records as may be prescribed, the particulars to be entered therein and the manner of keeping the same,
 - (a1), (a2) (Repealed)
 - (a3) the installation and operation of cathodic protection systems and stray current sources,
 - (b) the examination, testing, approval and stamping or labelling and the withholding and withdrawal of approval of cathodic protection systems and stray current sources,
 - (b1) (Repealed)
 - (c) prescribing standards for electrical articles and for the materials used in the manufacture of electrical articles,
 - (c1) (Repealed)
 - (d) the fees to be charged for the examination, testing, and/or approval of cathodic protection systems and stray current sources,
 - (e)–(e2) (Repealed)
 - (f) prohibiting interference by unauthorised persons with any electric wire, cable and/or meter and/or any prescribed electrical appliance, fitting, insulator and/or apparatus,
 - (f1), (g) (Repealed)
 - (h) inspection by electricity supply authorities of electrical wires, cables, appliances, meters, fittings, insulators and apparatus installed in, on, over or under any place or premises whatsoever,
 - (i) prescribing standards for the voltages to be maintained at the terminals of consumers of electricity,
 - (j) prescribing standards and rules for the installation of electric wires, cables, appliances, meters, fittings, insulators, or apparatus in, on, over or under any place or premises whatsoever and the alteration, repair or renewal thereof,
 - (k) the training and qualifications of persons who perform work concerning high voltage electrical equipment,
 - (k1) (Repealed)
 - (l) the safety of persons employed by electricity supply authorities in connection with the generation, transmission, distribution or supply of electricity or of persons engaged in the installation of electric wires, cables, appliances, meters, fittings, insulators or apparatus in, on, under or over any place or premises whatsoever,
 - (m) prescribing the furnishing of reports, information, particulars, returns and statistics by electricity supply authorities and the time and mode of furnishing and the manner of verification of the same,

- (n) the fees to be charged by an electricity supply authority for inspection and testing of an electrical installation (whether or not it is a consumer's installation),
- (o) the constitution, functions and procedures of a committee to advise the Director in relation to the form of declarations of compliance, within the meaning of Part 4C, and any other matters relating to the regulation of the approval or sale of electrical articles that may be referred to it by the Director,
- (p) the making of applications for the purposes of Part 4C,
- (q) qualified persons, within the meaning of Part 4C,
- (r) the form and content of declarations of compliance, within the meaning of Part 4C, and requiring any such declaration to be in the form of a statutory declaration,
- (s) the testing and inspection of electrical articles,
- (t) the approval, and the withholding and withdrawal of approval, of electrical articles or types of electrical articles and the renewal and duration of any such approval,
- (u) the fees to be charged for the testing, inspection or approval of electrical articles or of types of electrical articles or for the renewal of any such approval,
- (v) the marking or labelling of electrical articles,
- (w) prohibiting the fraudulent or improper use of marks similar to those required by this Act or of marks so nearly resembling those required by this Act as to be likely to deceive,
- (x) the approval of places, whether within or outside New South Wales, for the testing of electrical articles,
- (y) the specifications, within the meaning of Part 4C, and other requirements for electrical articles,
- (z) the fees to be charged for applications under Part 4C,
- (aa) prohibiting the making of any statement in any application, declaration or other document made or given for the purposes of this Act, being a statement which is false or misleading in a material respect,
- (bb) guarantees to be given with respect to electrical articles,
- (cc) prohibiting or regulating the disposal, whether by way of sale or not, of electrical articles and the display of electrical articles in connection therewith,
- (dd) prescribing standards for electrical installations and other equipment used for or in connection with the generation or supply of electricity (other than by Pacific Power) and for materials used in the manufacture of such equipment, and the adoption of engineering standards for such installations, equipment and materials,
- (ee)–(gg) (Repealed)
- (hh) the connection and disconnection of an electrical installation to a supply of electricity,
- (ii)–(nn) (Repealed)
- (oo) requiring the carrying out of work to remove a danger or to remedy a defect relating to the distribution, transmission or use of electricity within a distribution district,
- (pp) the opening of the surface of roads,

- (qq) restricting or regulating the removal or trimming of trees by an electricity distributor, and
- (rr) (Repealed)
- (2A) A regulation may apply, adopt or incorporate, with or without modification, the provisions, as in force for the time being, of any Act or statutory rule or of any other publication, whether of the same or of a different kind.
- (2B) A provision of a regulation may:
 - (aa) (Repealed)
 - (a) apply generally or be limited in its application by reference to specified exceptions or factors,
 - (b) apply differently according to different factors of a specified kind, or
 - (c) authorise any matter or thing to be from time to time determined, applied or regulated by any specified person or body, or may do any combination of those things.
- (3) A regulation may create an offence punishable by a penalty not exceeding:
 - (a) 200 penalty units in the case of a body corporate, or
 - (b) 100 penalty units in any other case.
- (4) A regulation made under the authority of this section shall bind the Crown if expressed so to do.
- (5) A regulation under this Act prevails over a regulation made under the *Local Government Act 1993*, to the extent of any inconsistency.
- (6)–(7) (Repealed)

There are four regulations under the Act, briefly described below.

- The *Electricity Safety (Equipment Safety) Regulation 1999* is administered by the Department of Fair Trading. The regulation covers minimum standards, certification, testing, warnings and labelling of certain electrical articles. It also constitutes and describes the functions of the Electrical Equipment Safety Advisory Committee.
- The *Electricity Safety (Equipment Efficiency) Regulation 1999* is administered by the Ministry of Energy and Utilities. The regulation covers minimum performance and energy efficiency standards, registration, labelling, and testing of certain electrical articles. The regulation recognises approval, registration and testing by equivalent authorities in other Australian jurisdictions.
- The *Electricity Safety (Corrosion Protection) Regulation 1998*, administered by the Ministry of Energy and Utilities, applies to certain cathodic protection systems. It covers approvals, objections to stray currents caused by corrosion, examination, testing and registration of cathodic protection systems.
- The *Electricity Safety (Electrical Installations) Regulation 1998*, administered by the Department of Fair Trading, requires that electricity installation work accord with the *Australian/New Zealand Wiring Rules*. It covers matters including the notification, safety, compliance testing and maintenance of consumer installations.

Appendix 4 Electrical safety in the USA

The majority of American households are supplied with electricity at 110 (110-125) volts, 60 cycles per second (Hertz of Hz). The electricity supply in Australia households generally operates on 220 (220-240) volts, 50 Hz.

Regulation

Product safety in the United States of America is administered at the federal level by the Consumer Product Safety Commission (the CPSC). The CPSC is an independent regulatory agency which, amongst other things, is responsible for administering the Consumer Product Safety Act to:

- protect the public against unreasonable risks of injury associated with consumer products;
- assist consumers in evaluating the comparative safety of consumer products;
- develop uniform safety standards for consumer products and to minimise conflicting State and local regulations; and
- promote research and investigation into the causes and prevention of product-related deaths, illnesses, and injuries.

The CPSC relies mainly on compliance with voluntary product safety standards, but may ban a product if there is no feasible standard available. Currently, the CPSC has published three mandatory standards for electrical products:

1. Safety standard for automatic residential garage door operators;
2. CB base station antennas, TV antennas, and supporting structures; and
3. Requirements for electrically operated toys or other electrically operated articles intended for use by children.

The Consumer Product Safety Act also requires that manufacturers of products for sale that are subject to a consumer product safety standard under the legislation certify that those products conform to all applicable consumer product safety standards.

The CPSC monitors products through channels such as consumer complaints, field investigations and the news media. Manufacturers are also required to report any safety hazards they discover in their products to the CPSC.

When a product is identified as having a potential safety hazard, the CPSC evaluates the product and determines the seriousness of the hazard and the risk of harm to consumers. This evaluation is done using sound engineering judgment and the voluntary standards published by Underwriters Laboratories (UL) as minimum safety requirements. If there is no UL Standard for a particular product, the voluntary requirements of the National Electrical Code (NEC) are used. The NEC is published by the National Fire Protection Association. If it is determined that the product contains a substantial product safety hazard, the CPSC works with the manufacturer to develop a corrective action plan on a case-by-case basis. In some cases, the manufacturer will identify the defect, create their own corrective action plan, and submit it to the CPSC for approval.

Installation of home wiring regulation varies from State to State, but generally, new installation work is supposed to be done by licence or permit holders, with the work

inspected by local officials. Electrical inspections are not required when premises change hands. Although voluntary codes and standards exist for house wiring and most consumer articles, inspections and repair work are not always regulated, nor is compliance with codes and standards necessarily enforced.

Consumer accidents

Consumer electrocutions²² were estimated to have occurred in 1983 at a rate of 1.7 per million U.S. population (400 consumer product-related fatalities). In 1997, that rate fell to 0.71 per million (190 consumer product-related fatalities). The following table summarises the number of electrocutions estimated to have been caused by consumer products:

Consumer article	Fatalities	%
Installed household wiring	22	11
Antennas	20	10
Lamps, light fixtures	15	8
Pumps / generators	13	7
Ladders	13	7
Pipes, poles, fences	13	7
Other small appliances	11	6
Extension cords	9	5
Radios, televisions, stereos	9	5
Power saws	7	4
Battery chargers	6	3
Refrigerators/freezers	6	3
Work lights	6	3
Garden/farm equipment	6	3
Fans	4	2
Hair, hygiene equipment	4	2
Microwave ovens	4	2
Air conditioners	4	2
Clothes dryers	4	2
Electric furnaces / water heaters	4	2
Welding equipment	4	2
Other products	4	2
Power drills	2	1
Other power tools	2	1
Boat hoists/amusement rides	2	1
Total	194	100

The following table from the Consumer Product Safety Commission summarises the number of residential fires and related value of damage to residential property, civilian deaths and injuries in the United States during 1998. The table highlights the most frequently reported groups of electrical products that are believed to be

²² United States Consumer Product Safety Commission report: *1997 Electrocutions Associated with the Use of Consumer Products*, dated 5 April 2000.

responsible for the fires. All figures have been rounded. It should also be noted that the number of fatalities is not directly comparable with the electrocutions directly related to consumer products reported above. The following table describes data related to the general effects of fires caused by electrical consumer products.

US estimated residential structure fires for selected electrical equipment, 1998²³

	Number of fires			\$mil loss	Number of civilian fatalities			Number of civilian injuries		
	1996	1997	1998	1998	1996	1997	1998	1996	1997	1998
Total residential	371,200	357,700	332,300	3,562.5	3,440	2,760	2,660	17,030	16,080	15,260
Total electrical	166,400	165,700	155,900	1,680.2	1,060	810	800	7,060	6,940	6,810
<u>Selected equipment:</u>										
Electrical heating equipment	12,000	11,400	9,400	102.9	150	90	50	490	350	330
Electrical cooking equipment	59,100	63,000	58,200	251.7	150	120	180	3,110	3,440	3,260
Electrical distribution	41,100	41,100	38,800	680.0	370	260	280	1,420	1,390	1,230
Electrical appliances	21,300	21,900	20,300	179.5	110	100	100	750	780	730
Cooling equipment	3,800	3,600	3,800	51.2	#	#	10	80	120	140

indicates fewer than 10

A break up of the above data shows that installed wiring causes the second-highest number of household fires (around 14,000 per year). Only electric ranges and ovens cause more fires, at a little over 50,000 per year. Both wiring and range/oven fires kill approximately 110 people annually, although fewer people are injured by wiring-related fires (320-420 annually) than by range/oven fires (2,800 – 3,100 annually).

Workplace accidents

Data on workplace accidents and injuries in the United States of America are collected and published by the Bureau of Labor Statistics, part of the Department of Labor.

The following tables detail the fatal and non-fatal injuries reported annually, broken up by relevant event, according to the following event codes from the US Bureau of Labor Statistics *Occupational Injury and Illness Classification Manual*.

- 311 Contact with electric current of machine, tool, appliance, or light fixture
- 312 Contact with wiring, transformers, or other electrical components
- 313 Contact with overhead power lines
- 314 Contact with underground, buried power lines
- 319 Contact with electric current, n.e.c.

²³ Mah, J. *1998 Residential Fire Loss Estimates, US National Estimates of Fires, Deaths, Injuries and Property Losses from Non-Incendiary, Non-Suspicious Fires*. Division of Hazard Analysis, Directorate for Epidemiology, US Consumer Product Safety Commission. Washington, DC.

Fatal occupational injuries (all industries) by event 1992-1999

Event code#	311	312	313	314	319	Total no. of cases
1992	60	66	140	n/a	53	319
1993	44	100	115	5	45	309
1994	63	98	132	6	34	333
1995	55	94	139	5	38	331
1996	46	70	116	5	26	263
1997	41	71	138	5	21	276
1998	51	84	153	9	16	313
1999	51	75	124	n/a	15	265
Ave. no. fatalities	51	82	132	6	31	301

Non-fatal cases involving days away from work (private industry) by event, number and incidence, 1992-1999²⁴

Event code#	311	inc.	312	inc.	313	inc.	314	inc.	319	inc.	Total cases
1992	1,795	20	1,614	20	174	n/a	36	n/a	509	10	4,128
1993	2,111	30	1,531	20	133	n/a	74	n/a	620	10	4,469
1994	2,966	40	1,607	20	273	n/a	38	n/a	415	n/a	5,299
1995	1,506	20	1,571	20	155	n/a	47	n/a	522	10	3,801
1996	1,037	10	1,751	20	92	n/a	153	n/a	465	10	3,498
1997	1,413	20	1,390	20	79	n/a	52	n/a	386	n/a	3,320
1998	1,361	20	1,318	20	314	n/a	40	n/a	322	n/a	3,355
1999	1,588	20	1,261	10	194	n/a	92	n/a	700	10	3,835
Ave. no. cases	1,722		1,505		177		67		492		3,963

Research by the Division of Safety Research in the US National Institute for Occupational Safety and Health indicates that the majority of workplace electrocutions between 1982 and 1994 were preventable. Many were due to a failure by accident victims to use personal protective equipment or the lack (or the lack of enforcement) of an established safety program or written work safety procedures. In the case of improperly installed or damaged equipment, the most frequently cited problem appeared to be improper grounding of equipment or electrical circuitry.

²⁴ Compiled from tables R31, *Number of non-fatal occupational injuries and illnesses involving days away from work by event or exposure leading to injury or illness and selected natures of injury or illness, 1992 – 1999* and tables R34, *Incidence rates for non-fatal occupational injuries and illnesses involving days away from work per million full-time workers by event or exposure leading to injury or illness and selected natures of injury or illness, 1992 – 1999*, Bureau of Labor Statistics. N/a indicates that figures are not available.

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