Electricity Safety (Installations) Regulations 2009

Regulatory Impact Statement

This Regulatory Impact Statement has been prepared in accordance with the requirements of the *Subordinate Legislation Act 1994* and the Victorian Guide to Regulation incorporating Guidelines for the Measurement of Changes in Administrative Burden.

31 August 2009

In accordance with the *Victorian Guide to Regulation*, the Victorian Government seeks to ensure that regulations are well targeted, effective and appropriate, and that they impose the lowest possible burden on Victorian businesses and the community.

The Regulatory Impact Statement (RIS) process involves an assessment of regulatory proposals and allows members of the community to comment on proposed regulations before they are finalised. Such public input provides valuable information and perspectives, and improves the overall quality of regulations.

This RIS has been prepared to facilitate public consultation on the proposed **Electricity Safety (Installations) Regulations 2009**. A copy of the proposed regulations is attached to this RIS.

Public comments and submissions are now invited on the proposed regulations. All submissions will be treated as public documents and will be made available to other parties upon request. Written comments and submissions should be forwarded by no later than **5:00pm, 27 October, 2009** to:

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or email:

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1 September 2009

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Dear Mr Bottegal

ASSESSMENT OF REGULATORY IMPACT STATEMENT

Thank you for seeking an assessment of the Regulatory Impact Statement (RIS) on the proposed Electricity Safety (Installations) Regulations 2009. The Victorian Competition and Efficiency Commission (VCEC) received the final version of the above RIS and draft Regulations on 1 September and 28 August 2009 respectively.

The VCEC assesses the adequacy of the RIS prior to the public consultation process as required under section 11 of the *Subordinate Legislation Act 1994*.

I advise that the RIS meets the requirements of section 10(3) of the *Subordinate Legislation Act 1994*.

The VCEC's assessment is based on the adequacy of the evidence presented in the RIS and is focused on the quality of the analysis rather than the merits of the proposal itself. Further evidence on the nature and size of the costs and benefits may emerge during the consultation stage and consequently change the conclusions reached.

In the interests of transparency, the VCEC recommends that you publish this assessment letter alongside the RIS when it is released for consultation as a number of other departments and agencies have done.

The VCEC is building a database of Victorian Government RISs and statements of reasons for change, and will be putting your material on our website when it is released. Please inform us when you have placed this RIS on your website. Please also provide us with an electronic copy of your statement of reasons for changes to the final regulations when they are provided to the Scrutiny of Acts and Regulations Committee (refer 5.53 Subordinate Legislation Act 1994 Guidelines, 17 January 2005).

If you have any questions, please contact RegulationReview@vcec.vic.gov.au.

Yours sincerely

Sam Abusah

Assistant Director

Victorian Competition and Efficiency Commission

Victoria
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GLOSSARY

'the Act' – Electricity Safety Act 1998

BTS – Builder's Temporary Supply

COES – Certificate of Electrical Safety

CPI – Consumer Price Index

CR or 'the Current Regulations' – those sections of the Electricity Safety (Installations) Regulations 1999 that do not relate to the registration and licensing of electrical contractors

EIRPC – Electrical Incident Review and Prevention Committee

ERAC – Electrical Regulatory Authorities Council

ESV – Energy Safe Victoria

EWR – Electrical Work Request

FTE – Full-time equivalent

IEI – Institute of Electrical Inspectors

LEI – Licensed Electrical Inspector

LEIW – Licensed Electrical Installation Worker

NCP – National Competition Policy

NHMRC – National Health and Medical Research Council

NOCS – Notice of Completion System

OCR – Optical Character Recognition

PIC – Plumbing Industry Commission

PR or 'the Proposed Regulations' – Electricity Safety (Installations) Regulations 2009

REC – Registered Electrical Contractor

RIS – Regulatory Impact Statement

SECV – State Electricity Commission Victoria

SIR – Service and Installation Rules

VCEC – Victorian Competition and Efficiency Commission

WR – Australian and New Zealand Wiring Rules (AS/NZS 3000:2007)

SUMMARY

Over the past hundred years, electricity has become an essential product. It powers our homes and our workplaces, and electrical products have become ubiquitous in all aspects of life. Electricity is inherently hazardous, and its extensive use is only possible because of a multi-faceted safety approach that extends from electrical generation and transmission to electrical installations and appliances.

Safety regulation emerged at the very beginning of electricity's widespread use in the community. Regulations covering electrical installations and wiring have existed in Victoria since 1918. Since that time, there have been two significant and related trends in Victoria's electrical installation regulations: greater national uniformity, and greater reliance on the Australian and New Zealand standards as the benchmark for prescribed electrical installation standards.

In Victoria, the *Subordinate Legislation Act 1994* requires that new or remade regulatory proposals that impose an 'appreciable economic or social burden on a sector of the public' be formally assessed in a Regulatory Impact Statement (RIS). A RIS provides an evaluation framework for new regulatory proposals. It states the objectives of Proposed Regulations (PR), examines the nature and extent of the problem that the PR seek to address, explains the effect of the PR and assesses the costs and benefits.

This RIS has been prepared to facilitate public consultation on the proposed **Electricity Safety (Installations) Regulations 2009**. These regulations are being prepared by the Victorian Government and would replace those sections of the current Electricity Safety (Installations) Regulations 1999 that do not relate to the registration and licensing of electrical contractors. The PR have been assessed as imposing an appreciable burden.

The proposed Regulations establish a regulatory framework to ensure that electrical installations (work conducted by electricians) are installed at an appropriately safe standard. The proposed Regulations prescribe a range of wiring methods, protection mechanisms and minimum distances. They also deal with testing and inspection of electrical installation work. Reporting of incidents and records that must be maintained are also prescribed. In addition, the proposed Regulations impose duties on owners and operators of high voltage electrical installations and owners of complex electrical installations. Duties are also extended to the public by prescribing minimum distances in which certain activities must not occur in order to protect aerial power lines. Finally, the proposed regulations prescribe the fee levels for Certificates of Electrical Safety (COES), and provide for an enforcement mechanism by prescribing a number of infringement offences.

The proposed Regulations largely remake the current Regulations, with some important changes. The key proposed changes and the rationale for those changes are summarised in the Table below. Some provisions in the proposed Regulations modify or add to the wiring requirements. Those provisions have been developed by ESV with input from the Electrical Incident Review and Prevention Committee (EIRPC).

Key proposed changes between PR and CR

Requirement under the PR	Analogous provision under the CR	Comments and rationale
202(1): A person must not install, alter, repair or maintain an electrical installation or portion thereof unless the installation or the portion of the installation complies with Division 1 of the PR and the WR (202(1)). If a provision in any standard is inconsistent with a provision in the division, the division prevails to the extent of the inconsistency.	401(1): A person must not install, alter, repair or maintain an electrical installation or portion thereof unless the installation or the portion of the installation complies with the WR as modified by the CR.	Under both the CR and PR, compliance with the WR is prescribed. Due to a series of amendments, the CR have a less tidy relationship with WR; the PR would simplify the relationship. Also, the PR clarify that, in the event of any inconsistency between the PR and the WR, the PR prevail.
221: allows for emergency substantial restoration of a private electric aerial line in a high bushfire risk area in order to restore power after a line fault, provided that the owner provides a COES for the restoration and a written statement that they will have the line placed underground or disconnected within a 60 day period. Penalties for failure to comply with each part of this regulation are specified.	N/A (new provision, but note 401(q))	Addresses gaps and safety imperatives identified in recent bushfire seasons. Provision has been drafted to support practical transition to burial of private aerial lines in high bushfire risk areas. Effectively the provision would create an automatic exemption for emergency restoration of lines; this would enhance certainty and simplify administration and compliance because ESV currently deals directly case by case.
232: no protective equipment may be installed between the point of supply and any main switches for safety services at the direction of an electricity supplier; sets out the penalty to the electricity supplier should this occur.	N/A (new provision)	Would address an identified gap and safety imperative; ensures power is not cut from lifts, fire services etc. when building loses power.
Division 3 of Part 2 of the PR incorporates aspects of the Network Assets (NA) Regulations that protect electrical installations from	Incorporates aspects of regulation 23 of the NA regulations.	Anticipates the sunset of the NA Regulations which are not to be remade. The NA Regulations are no longer required as distribution and

faults on the supply network and set out requirements relating to service lines (i.e. the interconnection between electrical installations and supply networks).		transmission companies move to mandatory Electricity Safety Management Schemes from 1 January 2010.
Division 2 of Part 3 of the PR (Duties of the Public) expanded to apply to the supply networks of distribution and transmission companies	Currently covered by Part 4 of the NA Regulations	As above

In addition to these changes, the proposed Regulations include a small number of new and revised provisions that are designed to further improve safety by. strengthening conflict of interest provisions relating to inspections. The proposed Regulations also facilitate the removal of overlapping and similar provisions in the Electricity Safety (Network Assets) Regulations 1999. Finally, the proposed Regulations addresses gaps and safety imperatives identified in recent bushfire seasons. Provision has been made to support practical transition to burial of private aerial lines in high bushfire risk areas. Effectively the provision would create an automatic exemption for emergency restoration of lines; this would enhance certainty and simplify administration and compliance because ESV currently deals directly case by case.

The RIS finds that the primary benefit of the PR is improved safety in relation to electrical installation work. Other benefits include protection of property from electrical fires. The risk associated with not proceeding with the PR is that the effective operation of the *Electricity Safety Act 1998* would be diminished, thus increasing the risks to people and property from electrical installation work.

The costs imposed on the industry by the PR over a 10-year period are in the order of $12 million, or approximately $1.2 million per annum. The proposed Regulations will impose a similar or perhaps slightly higher cost on business compared to the current Regulations. For example there are new requirements to address gaps and safety imperatives identified in recent bushfire seasons and to ensure that power is not cut from lifts, fire services etc. when building loses power.

Energy Safe Victoria (ESV) is responsible for administering the Regulations. Government administrative costs are estimated to be $19 million over a 10-year period, or approximately $1.9 million per annum. Therefore, the total costs of the PR were estimated to be $31 million over a 10-year period, or approximately $3.1 million per annum. These costs are summarised in the table below.

Total cost of the PR over the 10 year assessment period (discounted)

Industry and government administrative costs	Total cost	Annual cost
Costs imposed on industry	$11,714,481	$1,171,448
Government administration costs	$19,384,762	$1,938,476
Total	$31,099,243	$3,109,924

If the PR prevented one death per year, then the benefits would outweigh the costs to the community.

The RIS considers and assesses feasible alternatives to the PR. These alternatives include a 'do nothing' option and a regime of self-regulation. Given the specific nature of the proposal a number of variations to the proposed Regulations were also considered. None of the alternatives was assessed as superior to the PR in meeting the Victorian Government's objectives. The PR provide the most effective and efficient means to promote the safety of electrical installation work. The alternatives' main disadvantages relate to the impact on safety and the impact on competition. Importantly, the options identified do not address issues that have been identified since the Black Saturday bushfires. As noted above, effectively the provision would create an automatic exemption for emergency restoration of lines; this would enhance certainty and simplify administration and compliance because ESV currently deals directly case by case.

It was assessed that the PR will not lead to a material change in the administrative burden on business.

The fees in the RIS were recalculated in line with the Victorian Government's *Cost Recovery Guidelines*. The fees are currently under-recovering the costs associated with the certificate of electrical safety (COES) system and the administration of exemptions under the regulations. In line with the guidelines, the proposed fees would fully recover the associated costs. The current and proposed fees are shown in the following table.

Current and proposed fees

Section/ provision	**Description**	**Current fee ($)**	**Proposed fee ($)**	**% Change**
45B	COES for prescribed work	20.00	28.50	42.5
45B	COES for non-prescribed work	5.00	7.10	42.0
45B	Periodic COES	500.00	650.00	30.0
45B	COES for prescribed work (electronic)	20.00	25.70	28.5
45B	COES for non-prescribed work (electronic)	5.00	6.50	30.0
reg. 401	Application for exemption	70.00	70.00	0.0

The proposed fee for each item above was determined by examining all the activities associated with processing and administering the certificates, and attributing a direct cost

to these activities (see steps described in Attachment H on pp. 93–4). Once the direct costs were established, corporate overheads were allocated to these functions. The direct and indirect costs were aggregated based on full cost recovery. A fee work unit of $6.41 was determined. The table below shows the component costs in the fee work unit.

Derivation of fee work unit

Line	Description	Amount	Attachment H - Notes
1.a	Salaries	$1,663,911	See 'Salaries and on-costs', p. 95
1.b	Motor vehicles	$251,658	See 'Motor vehicles' on p.97 and Table H.6
1.c	Printing - COES	$380,000	See 'Printing', p. 96
1.d	Legal	$117,600	See 'Legal costs' on p. 96 and Table H.7
1.e	Compliance Audits	$2,348,280	See 'audits', p. 97
1.f	Agency	$246,000	Payment to agents who sell COES
A	*Total direct costs of COES system*	$5,007,449	Add 1.a to 1.f
2.a	Indirect costs	$1,126,339	See Table H.7
2.b	Overhead allocation of costs in operating COES system	$832,421	See Table H.7
B	*Total indirect and overhead costs*	$1,958,760	Add 2.a and 2.b
C	*Total operating costs of COES system*	$6,966,209	A + B
3	Total COES sold	618,950	See Table H.1
4	Total COES sold converted to work based units	1,086,677	See Tables H1, H2 and H.3
D	Cost per work based unit (total cost divided by number of work based units	**$6.41**	C ÷ 4

To obtain the fee amount for each certificate, the number of work based units was multiplied by $6.41. For example, an electronic prescribed certificate involves four work based units, which results in a total cost for that activity of $25.69 (rounded to $25.70).

The proposed fees would raise approximately $7 million in the first year, and this amount would increase in line with the consumer price index over the life of the regulations.

The PR were considered against a competition test. This showed the PR would not impose restrictions on competition.

This Regulatory Impact Statement concludes:

- **the likely magnitude of the benefits to the community of the PR exceed the costs;**
- **the net benefits of the PR are greater than those associated with any practicable alternative;**
- **the PR do not impose restrictions on competition; and**
- **the PR will not materially increase the administrative burden on industry.**

1. INTRODUCTION

1.1 Regulation in Victoria: Reducing the regulatory burden

In Victoria, the *Subordinate Legislation Act 1994* requires that proposals for new or remade regulations that impose an 'appreciable economic or social burden on a sector of the public' must be formally assessed in a Regulatory Impact Statement (RIS). The RIS assessment process aims to ensure that the costs of the regulations are outweighed by the benefits, and that the regulatory proposal is superior to alternative approaches.

The proposed Electricity Safety (Installations) Regulations 2009 (the Proposed Regulations, PR) have been assessed as imposing an appreciable burden. Accordingly, a RIS is required for the PR to be made. This RIS formally assesses the PR against the requirements in the *Subordinate Legislation Act 1994* and the *Victorian Guide to Regulation incorporating: Guidelines made under the Subordinate Legislation Act 1994*.

The Victorian Government's stated priorities in relation to regulation are:

- reducing the regulatory burden on business and not-for-profit organisations; and
- ensuring that regulations are well targeted, effective and appropriate.

The regulatory proposals in this RIS are assessed in the context of these priorities. The *Reducing the Regulatory Burden* initiative commits the Victorian Government to reducing the administrative and compliance burdens of regulation.[1] Accordingly, this RIS also uses the Victorian Standard Cost Model methodology to inform the cost-benefit analysis and to measure changes to the administrative burden.[2]

The assessment framework of this RIS:

- examines the nature and extent of the problem to be addressed;
- states the objectives of the PR;
- explains the effects of the PR on various stakeholders; and
- assesses the costs and benefits of the PR.

Practicable alternatives to the PR are also considered and assessed. The RIS measures if there is any net change in the administrative burden imposed on business that arises from new elements of the regulatory proposal. It also examines potential impacts on small business and competition.

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[1] Victorian Government, 2006, Reducing the Regulatory Burden: The Victorian Government's Plan to Reduce Red Tape, pp. 2−3.

[2] Department of Treasury and Finance, 2007, 2nd ed, Victorian Guide to Regulation incorporating: Guidelines made under the Subordinate Legislation Act 1994 and Guidelines for the Measurement of Changes in Administrative Burden, Melbourne.

The PR include fees for purchasing certificates of electrical safety and for applications for exemptions to certain regulations. The Victorian Government has published *Cost Recovery Guidelines* which set out the policy principles underpinning cost-recovery arrangements in the State.[3] The Guidelines establish a whole-of-government framework for ensuring that cost-recovery arrangements are transparent, efficient, effective and consistent with legislation and policy. The assessment of fee arrangements in this RIS has been undertaken in accordance with the *Cost Recovery Guidelines*. (The proposed fees have been set on a full cost recovery basis.)

A key purpose of the RIS process is to allow members of the public to comment on the PR before they are finalised. Public input provides valuable information and perspectives and improves the overall quality of regulations. Accordingly, ESV, which is responsible for administering the *Electricity Safety Act 1998* and the CR, is circulating the PR to stakeholders and welcomes and encourages feedback.

[3] Department of Treasury and Finance, 2007, Cost Recovery Guidelines: Incorporating the information formerly published in the Guidelines for Setting Fees and User-charges Imposed by Departments and Central Government Agencies, Melbourne.

2. BACKGROUND

2.1 The regulation of electrical safety in Victoria

Over the past century, electricity has become an essential product. It powers our homes and our workplaces, and electrical products have become ubiquitous in all aspects of life.

The Victorian Government's energy policy emphasises:

- the sustainable, secure, reliable and affordable supply of electricity and other forms of energy[4]; and

- safety in the supply and use of electricity and other forms of energy.

Of specific relevance to this RIS, the Government has articulated a goal of promoting, through Energy Safe Victoria, the safety of electrical installation work.

This safety emphasis is important. Electricity is inherently hazardous, and its extensive use is only possible because of a multi-faceted safety approach that extends from generation and transmission to the design and operation of electrical appliances. The inherent risks associated with electrical work are managed through a variety of practices and precautions including electrical wire insulation, safety distances for aerial lines, safety depths for burying electrical cables, and the installation of safety devices.

Table 1.1 shows the number of accidental electrical fatalities (excluding suicides) between 1993 and 2007-08. The table shows that the number of annual fatalities declined significantly, from 49 in each of 1993 and 1994, to 20 in 2006-07, and an unprecedented low of seven in 2007-08. Of the seven reported deaths in the financial year 2007-08, four involved electricity supply networks while three involved customers' electrical installations, appliances or equipment (see Table 1.2).[5]

Table 1.1: Number of fatal electrical accidents, Australian States and Territories, 1993 to 2007-08

	VIC	NSW	SA	WA	QLD	TAS	NT	ACT	AUST
1993	5	16	3	6	12	3	1	3	49
1994	6	23	1	4	11	1	2	1	49
1995	8	13	2	8	7	2	1	0	41
1995-96	10	13	2	6	9	4	0	0	44
1996-97	8	9	2	5	20	0	2	0	46

[4] See for example *Growing Victoria Together*, a policy framework that provides a vision for Victoria in 2010; and Department of Natural Resources and Environment, 2002, 'Energy for Victoria: A Statement by the Minister for Energy and Resources'.

[5] Ref: ERAC 2007-08.

	VIC	NSW	SA	WA	QLD	TAS	NT	ACT	AUST
1997-98	4	17	2	3	11	1	0	0	38
1998-99	7	9	3	5	11	0	2	0	37
1999-00	8	11	0	6	10	0	0	0	35
2000-01	5	9	7	4	10	0	2	0	37
2001-02	1	3	2	2	3	3	1	1	16
2002-03	0	13	1	7	1	4	0	1	27
2003-04	1	10	1	3	2	0	1	0	18
2004-05	1	11	1	4	8	1	2	0	28
2005-06	6	6	0	3	3	0	3	0	21
2006-07	2	3	1	5	6	2	1	0	20
2007-08	1	0	0	1	5	0	0	0	7

Source: Electrical Regulatory Authorities Council, Australia & New Zealand, 2005–06, 2006–07 & 2007–08.

Table 1.2: Number of fatal electrical accidents relating to consumer installations or equipment, Australian States and Territories, 2005-06 to 2007-08

	VIC	NSW	SA	WA	QLD	TAS	NT	ACT	AUST
2005-06	1	2	0	0	3	0	1	0	7
2006-07	2	3	0	1	2	0	0	0	8
2007-08	0	0	0	0	3	0	0	0	3

The electrical safety regime features detailed technical standards as well as qualification requirements for electricity workers. The qualification requirements reflect the fact that, in electrical installation work, specialised knowledge is involved: 'the community cannot be expected to have the skill sets required to understand the technical complexities of the product and the occupational hazards which may be faced in this environment.'[6]

Because of the nature of electricity, safety regulation emerged at the very beginning of electricity's widespread use in the community. Regulations covering electrical installations and wiring have existed in Victoria since 1918. While there was significant commonality in standards across the various Australian jurisdictions, Victoria's regulations were state-specific until 1976 when the SECV adopted the Australian Standard Wiring Rules, as modified by the Wiring Regulations under s.110 of the *State Electricity Commission Act 1958*. In 1992, the regulations were revised to reflect the updated Australian Standard SAA Wiring Rules (AS3000:1991) and to establish still greater national uniformity.

[6] Regulatory Impact Statement for the Electricity Safety (Installations)(Amendment) Regulations 2000, Office of the Chief Electrical Inspector, Victoria, August 2000.

Until 1998, the regulation of electrical installation safety was the responsibility of Victoria's state power company, the State Electricity Commission (SECV) and its predecessors. Privatisation of Victoria's state-owned electricity assets and the establishment of new electricity market arrangements necessitated new regulatory arrangements. The *Electricity Industry Act 1993* was the principal Act for restructuring the industry, including achieving the economic separation of electricity generation, transmission and distribution assets.

The Chief Electrical Inspector initially operated within the SECV to regulate electrical safety throughout Victoria. As part of the reforms related to electricity privatisation, the OCEI was established as an independent regulator, firstly in accordance with the *Electricity Industry Act 1993* and then in accordance with the *Electricity Safety Act 1998*. The *Electricity Safety Act 1998* replaced parts of the *State Electricity Commission Act 1958* and two other Acts (the *Electricity Industry Act 1993* and the *Electric Light and Power Act 1958*).

The CR were established in 1998 under the *Electricity Safety Act 1998* (the Act) to take the place of, *inter alia*, the State Electricity Commission Wiring Regulations 1992.[7] The CR differed from the previous regulations in several important ways. Together, the Act and the CR:

- established a compliance scheme that mandated the issue of certificates of electrical safety to all customers, the OCEI and the electricity supplier;

- assigned to RECs responsibility for ensuring an LEI was engaged to inspect prescribed electrical installation work (hitherto, that responsibility was with the electricity supplier);

- enabled the OCEI to grant exemptions to the installation regulations without input from the electricity supplier (and enabled the OCEI to charge fees for exemption applications);

- enabled the OCEI to monitor and audit the performance of electrical workers; and

- reduced the number of exceptions to the SAA Wiring Rules.

The CR reflected the ongoing trend of greater national uniformity, while maintaining Victoria-specific arrangements where these were necessary in light of the particular circumstances of the State.

To introduce greater flexibility to the regulation of electrical safety and reduce costs for industry and the community, the *Electricity Safety Act 1998* established a regime of electrical safety management schemes. The regime enables industry participants to put forward alternative ways of achieving the safety goals of the legislation.

[7] The authorising provision for the CR (and the PR) is s.152 of the *Electricity Safety Act 1998*. An extract of the relevant authorising provision is at Appendix A.

2.2 Energy Safe Victoria (ESV)

Following a review of Victoria's energy safety regulators and pursuant to the Energy Safe Victoria Bill 2005, ESV was created in 2005 through the merger of the OCEI and the Office of Gas Safety. The rationale was to establish a single integrated energy safety regulator and therefore to streamline its work and improve efficiency, 'without compromising the high-quality safety outcomes' achieved by its predecessor organisations.[8]

ESV's objectives include the following in relation to electrical installations:

- ensuring the safety of electrical generation, transmission and distribution systems, electrical installations and electrical equipment; and
- controlling the safety standards of gas and electrical work.

Of particular relevance to this RIS, ESV performs a number of regulatory functions in relation to electrical installation work. At present, ESV has nine compliance staff engaged in work relating to the regulation of electrical installation safety. These nine staff:

- handle complaints relating to electrical installation work;
- carry out investigations and prosecutions arising from complaints;
- respond to electrical installation incidents involving injury or death, or damage to property (two of the staff are on call around the clock to respond to major incidents); and
- undertake electrical installation safety-related advocacy and awareness raising at industry fora.

A key milestone for ESV occurred in 2007-08, a year in which no deaths were reported in Victoria from accidents relating to consumers' installations or equipment.

2.3 Profile of Victoria's electricity industry

The Act and the CR define the key participants in the industry in connection to electrical installations:

- electricity suppliers;
- licensed electrical installation workers;
- registered electrical contractors (REC); and
- licensed electrical inspectors (LEIs).

[8] Second Reading Speech, Energy Safe Victoria Bill, Thursday 19 May 2005.

Table 1 below shows the numbers of persons registered or licensed in the categories under the Act. There are five[9] electricity suppliers and distribution businesses presently operating in Victoria. The other firms operating in the industry are predominantly small businesses (i.e. fewer than 20 employees).

Table 1: Number of persons registered or licensed in the categories under the Act

Category	Number
Licensed electrician	36,542
Registered electrical contractor:	
Corporation	3,695
Partnership	999
Sole proprietor	4,580
Total RECs	9,274
LEI	323*

*Note: *Of these, around half are actively involved in electrical inspection work. Source: ESV.*

There are approximately 85,000 prescribed certificates lodged each year, which corresponds to approximately 530 inspections per active LEI. LEIs can perform a range of activities other than the inspection of prescribed installation work, including:

- advising RECs;
- preliminary inspections;
- emergency investigation for ESV;
- designing electrical installations;
- replacing private overhead electric lines; and
- work for distribution businesses (e.g. supply investigations, voltage complaints, testing etc.).

2.4 Victoria's regulatory framework for electrical installation safety

The Act defines 'electrical installation' as 'electrical equipment that is fixed or to be fixed in, on, under or over any land'. 'Electrical equipment' is defined as 'any appliance, wire, fitting, cable, conduit or apparatus that generates, uses, conveys or controls...electricity'. 'Electrical installation work' encompasses installation, alteration, repair and maintenance of an electrical installation.

Under the Act, there are two categories of electrical installation work – 'prescribed' and 'non-prescribed'. Prescribed electrical installation work comprises the more complex and

[9] This figure includes Powercor's licence for the Docklands.

risky work, while the non-prescribed category represents less complex and more straightforward work.

The CR give operational effect to key aspects of the Act by specifying standards of electrical installation work and by regulating the relationship between RECs, LEIWs and LEIs. The key aspects of Victoria's safety compliance regime for electrical installation work are:

- the certificate of compliance;
- the certificate of inspection; and
- the certificate of electrical safety.

Table 2.1 sets out how these three elements work together.[10]

Table 2.1: Key aspects of Victoria's safety compliance regime for electrical installation work

Step	Requirement under the Act	Requirement under the CR
LEIW carries out the installation work	An LEIW must ensure all electrical installation work carried out by that worker complies with the Act and the regulations (44(1)).	A person must not install, alter, repair or maintain an electrical installation or portion thereof unless the installation or the portion of the installation **complies with the WR** as modified by the CR (401(1)).
Certificate of compliance	For all electrical installation work (prescribed and non-prescribed), the LEIW must within 4 business days of completion of that work, complete and sign a certificate of compliance in respect of the work (44(2)). The certificate must describe the work, state the work complies with the Act and the regulations, and contain other details as required by the regulations (44(3)).	The person responsible for the carrying out of the electrical installation work (usually the REC, the supervising LEIW or the LEIW who carried out the work) must within 2 business days of completing the certificate of compliance **notify** electronically ESV (via ESV's automated phone message system) of the completion of the certificate (412(1)).
Inspection of prescribed work	For **prescribed** electrical installation work, the person responsible for the carrying out of the work must ensure the work is inspected by an LEI before the work is connected to the supply or before it is first used (45(1)).	The inspection must take place within 8 business days of completion of the work (407(1)), and the LEI must not inspect the prescribed work unless the LEI has a copy of the certificate of compliance for the work (407(2)).

[10] Requirements for the registration and licensing of electrical contractors and workers are set out Parts 2 and 3 of the CR and are the subject of another RIS and another set of PR.

Step	Requirement under the Act	Requirement under the CR
	The electricity supplier must ensure a certificate of inspection of the prescribed work has been issued by an LEI before connecting the installation to the supply for the first time (45(2)).	
Certificate of inspection	The LEI must within 4 business days of the inspection give the responsible person a signed **certificate of inspection** (45(3)). The electricity supplier must ensure a certificate of inspection of the prescribed work has been issued by an LEI before connecting the installation to the supply (45(2)). The certificate of inspection must describe the work, state the LEI has inspected the work, state whether or not the work complies with the Act and the regulations, and contain other details as required by the regulations (45(4)).	The LEI must within 4 business days **notify** ESV electronically (via ESV's automated phone system) of the completion of the inspection (413(1)). The LEI must retain a copy of the certificate of inspection for 3 years (408(3)). The electricity supplier which receives a certificate of inspection must **retain a copy**, together with a record of the date the supplier connected the installation to the supply, for 3 years (415).
Certificate of Electrical Safety (COES)	For all electrical installation work (prescribed and non-prescribed) the responsible person must ensure a **COES** is completed in respect of the work, and, within the required time, give a completed COES to the person for whom the work was carried out, and ESV. The completed COES must contain the certificate of compliance, and, in the case of prescribed work, the certificate of inspection. The required time is: for prescribed electrical installation work, 4 business days after the certificate of inspection is given to the	

Step	Requirement under the Act	Requirement under the CR
	responsible person; for work under a periodic[11] COES, 4 business days after the end of the 3 months; and for other electrical installation work, one month after the certificate of compliance is completed. (45A)	

The features of the regulatory framework for electrical installation safety reflect the move from a centralised system, in which the SECV was principally responsible for the safety of installation work, to a devolved model in which RECs and LEIWs are responsible for the quality of their own electrical installation work. The mandatory inspection of prescribed electrical installation work prior to the connection of electricity supply or use by the customer provides an independent check that the work has been carried out in accordance with the regulations and is therefore safe.

In addition to the key steps and provisions in Table 2.1, a variety of requirements apply in the case of defects and non-compliances. For example, if the LEI is satisfied that the work is not installed in compliance with the Act or the Regulations, he or she must notify the REC or LEIW who was responsible for carrying out the work. An ESV enforcement officer may require rectification of non-compliant electrical installation work.

2.4.1 Australian/New Zealand Wiring Rules

Regulation 401 in the CR gives statutory force to the Australian and New Zealand Standard on Electrical Installations (AS/NZS 3000:2007), also known as the 'Australian/New Zealand Wiring Rules' and hereafter referred to as the 'Wiring Rules' or WR. This aspect of the CR reflects the principle that prescribed standards of electrical installation work should reflect industry practice and standards.

The WR were prepared by 'Joint Technical Committee EL-001, Wiring Rules'. The current edition of the WR were approved on behalf of the Council of Standards Australia on 19 October 2007 and on behalf of the Council of Standards New Zealand on 9 November 2007. The Wiring Rules were published on 12 November 2007. Committee EL-001 comprised representatives of electrical regulators, industry and professional bodies, a consumer body and the relevant union. Bodies that were represented on the committee include:

- Australian Building Codes Board;
- Australian Electrical and Electronic Manufacturers Association;

[11] The Act allows ESV to issue, for non-prescribed work at a particular installation, a 'periodic certificate'. The periodic certificate covers all electrical installation work (other than prescribed electrical installation work) for which a person is responsible that is carried out within a period of 3 months.

- Electrical Regulatory Authorities Council (ERAC);
- Energy Networks Association;
- Engineers Australia;
- Institute of Electrical Inspectors;
- National Electrical and Communications Association and Telstra Corporation Limited.

In all, 19 bodies and organisations were represented on the committee. ESV is a member of the ERAC.

Like other Australian and New Zealand Standards, the WR are subject to ongoing review and periodic revision. The Wiring Rules were issued in draft form for consultation prior to their approval and publication.

The 12 November 2007 WR were revised to reflect experience gained in the application of the preceding WR, and following a survey of the electrical industry which indicated that the industry wanted a document that:

- better reflected the current regulatory arrangements;
- flowed more logically;
- was easier to understand;
- contained more guidance material; and
- contained more diagrams and examples.

Accordingly, the 12 November 2007 WR contain significant revisions to improve clarity and readability, and to emphasise high-level safety performance outcomes rather than prescriptive work methods. Committee EL-001, Standards Australia and Standards New Zealand have sought to ensure that the WR are representative of industry best practice.

2.4.2 Comparison with approaches in other Australian States

Victoria's electricity safety regime is similar to the regimes in operation in the other Australian States. Overall, however, the proposed Regulations could be regarded as marginally more prescriptive than other jurisdictions. First, this partly reflects the structure of Victoria's electricity industry: that is, the distribution of electricity is fully privatised, whereas in other states distribution is managed by government. In these states there is not the need to prescribe details regarding the interaction between the distributor and the person carrying out the installation. Second, the slightly more prescriptive approach taken in Victoria is reflective in this States' safety record (e.g., see Table 1.1).

As an Australian and New Zealand standard, the WR have Australia-wide and New Zealand-wide coverage. Each State makes State-specific modifications and additions to how the WR apply, in reflection of interstate differences in industry structure, practice and policy.

3. OBJECTIVES OF THE PROPOSED INTERVENTION

The primary objective of the proposed intervention is the safety of building occupants, electrical workers and the general community.

The secondary objective is to address the market failures (asymmetric information and externalities) that relate to electrical installation work.

When markets function well, the implications for the community and the economy are significant. Well functioning markets allocate resources efficiently, thereby maximising social welfare. Nevertheless, it is not always the case that a given market will function well. Government intervention in a market can be justified if, in the absence of the intervention, the market would not reach an outcome that is socially efficient (this could manifest in the form of wasted resources, or excessive production of some types of output and inadequate production of other types). In other words, intervention is justifiable on the grounds of market failure.

Types of market failure include public goods – which are non-rival and non-excludable, and are under-produced without intervention; and externalities. In the latter type of market failure, there are missing markets for particular types of output, so those outputs are under-produced (in the case of positive externalities) or over-produced (in the case of negative externalities).

Asymmetric information is another type of market failure. Markets function well when information is shared and easy (and cheap) to discover. When pertinent information is not shared between participants in a market, welfare-enhancing trade may not take place, such that resources are not allocated efficiently; participants may incur significant costs to discover information; and consumers may face risks and costs where goods and services are not what they appear to be.

Instances of market failure in electrical installation work largely fall into two types:

- asymmetric information – it is difficult and costly for consumers to discover whether electrical installation work has been carried out safely. Specifically, consumers lack the specialist technical expertise to verify whether wiring has been installed safely and in most cases are unable to check this because wiring is behind walls or areas difficult to observe; and

- externalities – builders and electrical contractors do not bear the full cost of electrical fires and accidents involving future occupants or users of a building.

For the purposes of this RIS, these market failures are grouped under the concept of 'maintaining and improving the safety of electrical installation work'. The concept of safety in electrical installation work has several aspects: it relates to the safety of workers and tradespeople involved in electrical installation work; the owners and users of electrical installations; and any other people who may face any direct or indirect dangers from unsafe electrical installation work.

When working with electricity, safety is paramount. Exposure to electricity can result in a range of injuries, including:

- damage to the cardiovascular system (e.g. rhythm disturbances);
- skin injuries and burns;
- nervous system disruption;
- respiratory arrest; and
- head injuries, fractures and dislocations caused by being thrown due to the severe muscle contractions induced by the current.

The severity of electrical injury varies according to the strength of the current, the method of transmission (direct or indirect), the point at which electricity enters and leaves the body, the pathway the current takes through the body, and the physical conditions under which the event takes places.[12]

According to a 2007 study, approximately 1493 hospital episodes occurred Australia-wide during the two year period 2002–03 to 2003–04 as a result of an electrical injury. This equated to a rate of 3.78 cases per 100,000 population for the period. Overall, the mean length of stay in hospitals for cases of electrical injuries was 2.94 days. There were 162 deaths occurring as a result of electrical injury over the period 2001–04.[13]

Table 3.1 provides electrical incident data from the ESV database. The table shows that, in Victoria, there were 48 electrical fatalities between 2003 and 2008 (note that these data are reported on a different basis to the ERAC data). The year 2008 had the lowest number of fatalities (two) in the period. The table shows that the number of serious electrical injuries is much higher than the number of fatalities, and that a large number of incidents in which there was a 'serious risk to public safety' or there was significant property damage were also recorded over the period.

[12] Duff, K. and McCaffrey R. J., 2001, 'Electrical injury and lightning injury: A review of their mechanisms and neuropsychological, psychiatric, and neurological sequelae', *Neuropsychology Review* 11 (2):101–116.

[13] Pointer, S and Harrison, J., 2007, 'Electrical Injury and Death', Australian Institute of Health and Welfare, Canberra. AIHW Cat. No. INJCAT 99.

Table 3.1: Electrical incidents, ESV data

	2003	2004	2005	2006	2007	2008	Total
Fatalities	5	12	8	15	6	2	48
Serious Injury– bodily harm that requires a person to attend hospital for treatment	96	188	109	69	71	33	566
Serious Risk to Public Safety including reverse polarity of an electrical circuit and when OCEI specifically requested to attend	109	212	182	24	24	23	574
Significant Property Damage – i.e. damage to property other than Network Assets that exceeds $50,000	194	481	275	56	51	28	1085
Total	404	893	574	164	152	86	2273

Notes: Public safety includes home, workplace etc. Significant property damage excludes damage to vehicles as a result of a collision with Network Assets.

There are a number of methodologies that can be used to measure cost of death and injury. These include the Value or a Statistical Life (VSL), quality-adjusted life years (QALY), and disability-adjusted life years (DALY). Unfortunately, very little quantification has been conducted in Victoria to estimate these costs. The most comprehensive report, *The Cost of Injury to Victoria* (the most recent but now dated) provides such an estimate.[14] It is estimated that cost in 1993-94 of a person hospitalised as a result of burns (assumed as representative of electrical injuries) was $35,164, while the cost of non-hospitalised injuries $667. In today's prices, these costs would be in the order of $55,000 and $1,000 respectively.

Emergency services costs are additional to these costs. In the absence of an electrical installations safety regime, the cost burden associated with death and injury would be much higher.

Electrical incidents have consequences beyond the immediate impact on life and wellbeing. Serious injuries entail healthcare and downtime costs. Incidents also involve damage to property; economic losses from electrical fires can be very significant. The number of electricity related fires in recent years is shown in Table 3.2. The table shows that, on average, there are approximately 2000 electricity related fires each year in Victoria. Some of these fires cause minor damage while others are highly destructive. Assuming an average cost of property damage of $20,000 implies that the annual cost of

[14] Watson, W., 1997, The Cost of Injury to Victoria, Report No. 124, Monash University Accident Research Centre, p. 56.

these fires is approximately $40 million. As with the case of injury costs, in the absence of an electrical installations safety regime, the property damage cost would be much higher.

Table 3.2: Electricity related fires, 2004-05 to 2008-09, Victoria

2004-05	1467
2005-06	2544
2006-07	2844
2007-08	1317
2008-09	2847

Note: 2008-09 figure is to 12 June 2009. Source: ESV.

To give an indicative measure of the scale of the problem to be addressed by electricity safety regulation, the aggregate annual cost of electricity-related fire damage, injuries and deaths is in the order of $65 million. This figure is based on an annual estimate of 5 electricity-related deaths, 50 hospitalisations as a result of serious electrical injuries, and 2000 electricity-related fires.

Two case studies illustrating the dangers associated with electrical installation work are provided below. Because of the impacts of electrical incidents on people and property, improved electrical installation safety has wider benefits for the community and industry. Improved electrical safety also has indirect benefits by establishing a predictable safety environment in which there are shared practices and expectations, thus assisting the wider economy, including downstream producers and consumers who rely on electrical installation work.

Case Study 1: Serious Electrical Injury, Wodonga, October 2008

An apprentice carpenter was working in the roof space of a Community Centre when he received a serious electrical shock. His work mates found him unconscious in the roof space. They called an Ambulance and began resuscitation. The apprentice was revived by Ambulance Officers, and has recovered from his injuries. The apprentice received the shock from a toggle bolt that secured a light fitting to the ceiling.

Due to the following contributing factors, the toggle bolts, and light fittings, were live at 245 volts to earth: The metallic light fittings appeared never to have been connected to the buildings earthing system. The building was thought to have been constructed around 20 years ago. At that time it would have been a requirement of the Wiring Rules (as in force at that time) that the fittings be earthed. This failure removed a layer of protection that could have prevented the electric shock from occurring.

At the time of the installation of the light fittings, adequate testing would have discovered that the light fittings were not earthed. When additional work was carried out on that circuit (the installation of sweep fans) adequate testing at that time would also have discovered the fault. (Testing is mandatory under the CR and PR.)

On the morning of the incident, one of the light fittings on the circuit was removed. The wires at the point where the light fitting was removed were inadequately terminated, allowing the earth wire to make contact with a live active conductor. This action, combined with the lack of protection provided by the earthing system, caused all the light fittings to become live.

Case Study 2: Significant Property Damage from Downlights, 2006-07

During an 18 month period in 2006-2007, the MFB reported that there had been 57 fires caused by downlights. Properly installed, downlights pose no problem. However, if they are installed too close to structural timber or are covered (or become covered) by insulation or ceiling debris, they can pose a substantial fire risk and a risk to life. The damage caused by these fires is often substantial, and sometimes cause the complete loss of a home.

While the wiring rules (as in force at the time) did set some standards with respect to lights positioned near flammable and thermal insulation material, a more detailed set of requirements was introduced into the Wiring Rules to combat this problem. Together with an education and awareness campaign, the new requirement could be implemented and enforced immediately.

4. ASSESSMENT OF NON-REGULATORY AND REGULATORY OPTIONS

This section examines the viable options for achieving the safety objectives outlined in the previous section.

4.1 Non-regulatory and regulatory options

Regulations are an attempt to modify behaviour to achieve certain results. The use of a government's coercive authority can impose 'compliance costs', which are the costs that must be incurred in order to comply with regulations. In the context of the Victorian Standard Cost Model, these costs can be divided into 'administrative costs' and 'substantive compliance costs'.[15]

Administrative costs, also referred to as 'red tape' or the 'administrative burden', are those costs incurred by businesses to demonstrate compliance with the regulation or to allow government to administer the regulation. Administrative costs include record keeping and reporting costs. For the purposes of this RIS, and in accordance with the requirements under *Measurement of Changes in Administrative Burden* under the *Victorian Guide to Regulation*, administrative costs are calculated using the Victorian Standard Cost Model methodology.[16]

Substantive compliance costs are costs of a non-administrative nature that must be incurred to comply with the regulations. These costs include buying new equipment and undertaking prescribed training. Substantive compliance costs directly affect the desired regulatory outcomes.

The *Subordinate Legislation Act 1994* requires that a RIS be prepared in order to assess the costs and benefits of the PR. The Act also requires that a RIS identifies practicable alternatives to the PR and assesses their costs and benefits as compared to the PR. The RIS is not required to identify alternatives which are not feasible or not practicable.

A number of alternatives have been considered in the course of preparing this RIS.

- **With respect to the regulations overall, there are five principal alternatives**. The alternatives relate primarily to prescribing electrical safety standards for electrical installation work, and thereby directly achieving safety outcomes.

- There are also a number of different options relating to a subsidiary aspect of the regulations, namely that aspect that seeks to ensure **LEIs operate effectively and independently from electrical contractors and workers**, and thereby indirectly to achieve safety outcomes.

[15] For more information about self-regulation, see Department of Treasury and Finance (2007), op cit., p. F−7.

[16] Standard Cost Model Formula: Administrative Cost = (tariff x time) x (population x frequency).

With respect to the **regulations overall**, the alternatives considered are as follows:

Alternative 1	Establish a regime of self-regulation.
Alternative 2	Replace the CR with the PR.
Alternative 3	Replace the CR with a set of a set of new regulations that differ from the PR in regard to safety standards for electrical installation work.
Alternative 4	Incorporate the PR into the *Electricity Safety Act 1998*.

Each of these four alternatives is discussed in the following sub-section. The alternatives are assessed against the base case and the PR (Alternative 2).

With respect to the **relationship between LEIs, LEIWs and RECs**, the options considered are as follows:

Option 1	Do not remake the CR relating to the relationship between LEIs, LEIWs and RECs
Option 2	Maintain the CR.
Option 3	Add provisions that proscribe inspections where the LEI designed the work or was an employee of the REC or a related body corporate.
Option 4	Option 3, and undertake more compliance audits according to the pattern of complaints.
Option 5	Option 4, and undertake more proactive audits.
Option 6	Prescribe work-shares for inspections, so that multiple inspectors must be used for multiple installations work and for a particular REC's jobs in any given year.
Option 7	Centralise booking of LEIs through the zone inspection companies.
Option 8	Centralise booking of LEIs through ESV.
Option 9	Replace the network of independent LEIs by hiring inspectors through the zone inspection companies.
Option 10	Replace the network of independent LEIs by hiring inspectors through ESV.

Each of these 10 options is discussed and analysed in sub-section 4.3.

4.2 Alternatives in regard to the regulations overall

The five alternatives were assessed against the following criteria:

1. effectiveness in maintaining and improving safety;

2. practical and low-cost implementation;

3. low ongoing administrative costs for industry and government; and

4. low impact on competition.

Multi-criteria Analysis[17] (MCA) was used to analyse and compare the alternatives. MCA is a method of comparing alternative approaches through a qualitative assessment. Values and weightings are assigned against each criterion for each option or alternative. In the present RIS, a score of one hundred (100) means that the alternative fully achieves the relevant criterion or objective. A score of zero means that the proposal does not achieve the criterion or objective.

The safety criterion was assigned a relatively high weighting of 40 per cent, reflecting the safety focus of the regulations, and the severity of the safety risks that the regulations seek to address. The remaining criteria were each assigned a weighting of 20 per cent. This means that in the analysis a combined rating of 60 per cent was assigned to matters concerning implementation, ongoing administrative costs and competition. Due to the structure of the electricity industry, small businesses would bear the majority of non-government administrative costs associated with the five alternatives.

Base Case: Do not replace the CR

The base case describes the legislative and regulatory position that would exist in the absence of the PR and if the CR were allowed to lapse. The base case is not strictly an alternative but is included in this section for illustrative purposes and to benchmark the alternatives. It is necessary to establish this position in order to make a considered assessment of the incremental costs and benefits of the other alternatives, including the PR.

The base case represents the level of protection afforded to consumers and the community by laws currently in place, but in the absence of the CR and the PR. Victoria's electrical installation safety regime is established through a combination of the CR and the *Electricity Safety Act 1998*. Accordingly, for the purpose of this RIS, the base case in the absence of the CR and the PR is the operation of the Act alone.

Some safety-related obligations are prescribed by the Act directly. For example:

- s.44(2)(a): certificate of compliance;

- s.45(1): it is the person responsible for the carrying out of the prescribed work who must ensure the work is inspected by an LEI;

[17] See Appendix F for more details of MCA.

- s.45(2): certificate of inspection;
- s.45A: certificate of electrical safety; and
- s.45AB: notification of non-compliant work.

However, the main shortcoming with the base case is that several key safety-related sections of the Act depend upon the existence of regulations for the Act to operate with respect to electrical installation work. For example:

- s.42: electrical installation work must use methods, materials, fittings and apparatus 'in accordance with the regulations';
- s.44(1)(b): electrical installation work must be tested in accordance with and at the intervals required by the regulations before it is connected to the electricity supply or before it is first used after it is completed; and
- s.45(1): prescribed electrical installation work must be inspected by an LEI in accordance with the regulations before it is connected to the electrical supply or before it is first used after completion.

Without regulations, these sections of the Act would not be operative. Accordingly, without regulations, the Act would not prescribe standards of electrical installation work. Without binding standards, industry participants would be free to 'go it alone' in how they perform installation work, and the safety objectives of the Act would not be achieved.

There is strong evidence that the approach Australia-wide of prescribing electrical installation safety standards is effective in mitigating the risks inherent in using electricity. Pointer and Harrison (2007) concluded, 'The relatively small number of cases of serious injury due to contact with electricity, despite its lethal potential and the nearly ubiquitous provision of mains supply to Australian homes and workplaces, provides a basis for thinking that current preventative measures are largely successful'.[18] In Victoria, the number of fatalities relating to electrical installation incidents has been low in recent years. In 2007-08, no deaths were recorded from accidents involving consumers' installations and equipment.

Alternative 1: A regime of self-regulation

'Self-regulation' (such as through voluntary codes of practice) refers to benchmark actions or procedures, as determined by a particular industry or profession, that are generally acceptable within the group and within wider society. Where firms in an industry or members of a profession have accepted mutual obligations under a regime of self-regulation, these obligations are typically described in a code or industry standards. The relevant industry or profession is responsible for enforcement of the associated standards and rules.

[18] Pointer, S and Harrison, J. (2007) 'Electrical Injury and Death, Australian Institute of Health and Welfare', Canberra. AIHW Cat. No. INJCAT 99.

The potential benefits of self-regulation can be significant. As major industry participants often set the industry standards, and as self-regulation utilises the expertise, experience and goodwill of those in the industry, firms may be more aware of their obligations, and compliance may be high. For the same reasons, self-regulation may be designed in such a way as to minimise compliance costs, and encourage innovation. Self-regulation also lowers administrative costs for government.

However, under self-regulatory arrangements, enforcement or disciplinary processes may not be transparent. In the event that some industry participants chose to 'go it alone', sanctions may be weak or ineffective. Accordingly, self-regulation is best suited to sectors where the problem to be addressed has a low-risk of occurring or is of low impact, and where deviations from acceptable standards are readily observable.[19]

A regime of self-regulation in relation to electrical installation work would likely be based on industry best practice, as reflected in the Wiring Rules and other industry standards. As the PR themselves reflect industry best practice and are explicitly based on the Wiring Rules and other industry standards, the requirements facing industry participants are unlikely to differ significantly between the PR and Alternative A2.

However, a self-regulatory regime would entail costs that the PR would not. A self-regulatory regime would have weaker enforcement and less certainty for industry participants. To the extent that there would be greater diversity in compliance and practice under a self-regulatory regime than under the PR, some participants would operate at below industry best practice, and some participants would seek to adopt innovative methods that are at or above industry best practice.

The former type of participant would result in a worsening of safety standards. The latter type of participant would see safety outcomes that were equal to or better than industry best practice. However, the Act and the PR also permit innovation by allowing:

- management schemes (under the Act);
- Part 1 Solutions in cases where compliance with the PR is not possible (regulation 204); and
- exemptions from the PR.

Also, under the PR, innovations can be captured through improvements in the Wiring Rules via industry participation in the standards-setting process.

Accordingly, under self-regulation:

- there would be additional costs to the community due to greater uncertainty about practices and standards, and inferior safety outcomes; and
- the avenues for improved industry practice and improved safety outcomes would be no greater than under the PR.

[19] Department of Treasury and Finance (2007) op cit., B−1 p. 129

Given the severity of electricity safety risks, and the difficulty in observing deviations from appropriate standards, a self-regulatory scheme would be unsuitable to achieving safety in electrical installation work. Against the criterion of maintaining and improving safety, this alternative is rated higher than the base case, but lower than alternatives that involve prescribed safety standards.

The implementation costs of this option are relatively high due to the requirement for industry to develop the new self-regulation regime and associated monitoring and enforcement arrangements. There would also be ongoing costs for industry to administer the self-regulation scheme, and secondary costs for government due to the impaired safety of electrical installation work. This alternative is assessed has having no competition impact.

Table 4.2: MCA of Alternative 1

Criteria	Score
Effectiveness in maintaining and improving safety	70
Practical implementation	75
Low administrative costs to industry and government	70
Low competition impact	100
Weighted score	77

Alternative 2: Prescribe the WR and other relevant standards, with minimal modifications as necessary (the Proposed Regulations)

Alternative 2 (the PR) is based on the WR and other relevant industry standards, with modifications and additions to reflect the particular circumstances of Victoria's electricity industry.

Objectives of the PR

The primary objective of the PR is to promote safety and minimise risk to persons and damage to property resulting from electrical accidents and unsafe electrical installations work. A detailed description of the PR is at Appendix B.

The PR reflect the following regulatory principles:

- *minimal regulation*: regulations should only be made where they are the best way to address a significant safety issue;

- *principles-based regulation*: exemptions and alternative solutions should be permissible provided these are aligned with the goals and principles of the Act and the regulations;

- *national harmonisation*: prescribed standards should reflect national, industry-wide standards. Definitions and terminology in the regulations should reflect current industry practices and standards; and

- *full cost recovery*: fees should be set at reasonable levels and recover relevant costs.

In addition to these regulatory principles, the PR continue to reflect the principle of devolved responsibility, whereby RECs and LEIWs are responsible for the quality of their own electrical installation work.

Most of the PR have no administrative or competition impact. Also, most of the PR do not substantively differ from the CR. Where the PR differ from the CR, the differences are intended to accomplish one or more of the following:

- clarify industry participants' obligations, and simplify and improve compliance;

- address identified gaps and anomalies;

- facilitate the removal of overlapping and similar provisions in the Electricity Safety (Network Assets) Regulations 1999; and

- strengthen conflict of interest provisions in relation to LEIs (this aspect of the PR is examined in the following section).

A detailed comparison of the PR and CR is at Appendix B. The key proposed changes (apart from the conflict of interest provisions) and the rationale for those changes are summarised in Table 4.3 below. Some provisions in the PR modify or add to the WR requirements. Those provisions have been developed by ESV with input from the Electrical Incident Review and Prevention Committee (EIRPC). The provisions reflect the particular structure of Victoria's electricity sector, and the particulars of the certification and inspection regime established by the Act.

Table 4.3: Key proposed changes between PR and CR

Requirement under the PR	Analogous provision under the CR	Comments and rationale
202(1): A person must not install, alter, repair or maintain an electrical installation or portion thereof unless the installation or the portion of the installation complies with Division 1 of the PR and the WR (202(1)). If a provision in any standard	401(1): A person must not install, alter, repair or maintain an electrical installation or portion thereof unless the installation or the portion of the installation complies with the WR as modified by the CR.	Under both the CR and PR, compliance with the WR is prescribed. Due to a series of amendments, the CR have a less tidy relationship with WR; the PR would simplify the relationship. Also, the PR clarify that, in the event of any inconsistency between the PR and the WR, the PR

is inconsistent with a provision in the division, the division prevails to the extent of the inconsistency.		prevail.
221: allows for emergency substantial restoration of a private electric aerial line in a high bushfire risk area in order to restore power after a line fault, provided that the owner provides a COES for the restoration and a written statement that they will have the line placed underground or disconnected within a 90 day period. Penalties for failure to comply with each part of this regulation are specified.	N/A (new provision, but note 401(q))	Addresses gaps and safety imperatives identified in recent bushfire seasons. Provision has been drafted to support practical transition to burial of private aerial lines in high bushfire risk areas. Effectively the provision would create an automatic exemption for emergency restoration of lines; this would enhance certainty and simplify administration and compliance because ESV currently deals directly case by case.
232: no protective equipment may be installed between the point of supply and any main switches for safety services at the direction of an electricity supplier; sets out the penalty to the electricity supplier should this occur.	N/A (new provision)	Would address an identified gap and safety imperative; ensures power is not cut from lifts, fire services etc. when building loses power.
Division 3 of Part 2 of the PR incorporates aspects of the Network Assets (NA) Regulations that protect electrical installations from faults on the supply network and set out requirements relating to service lines (i.e. the interconnection between electrical installations and supply networks).	Incorporates aspects of regulation 23 of the NA regulations.	Anticipates the sunset of the NA Regulations which are not to be remade. The NA Regulations are no longer required as distribution and transmission companies move to mandatory Electricity Safety Management Schemes from 1 January 2010.
Division 2 of Part 3 of the PR (Duties of the Public) expanded to apply to the supply networks of distribution and transmission companies	Currently covered by Part 4 of the NA Regulations	As above

Parties affected by the PR

The parties affected by the PR are the key electricity industry participants identified above, namely the electricity businesses, RECs, LEIWs and LEIs. The regulations will also indirectly affect:

- consumers and residents;
- developers and other building industry participants; and
- people who use and visit buildings with electrical installations.

Accordingly, the people affected directly and indirectly by the PR are many, and account for the majority of the State's population. This reflects the extensive use of electricity and the ubiquity of electrical installation work.

Assessment of PR against the four criteria

The PR were assessed as being highly effective against the criterion of maintaining and improving safety of electrical installation work. This assessment was reached on the grounds that:

- remaking the regulations will allow the safety provisions of the *Electricity Safety Act 1998* to continue to operate;
- the key features of the existing regulatory regime would be maintained or strengthened under the PR. These features are well established in the sector, and have generated favourable safety outcomes in recent years;
- the PR are based on the key electricity industry standards, including in particular the WR;
- the PR adopt the WR in a more extensive and straightforward way, thereby simplifying compliance, compared with the CR; and
- the PR include a small number of new and revised provisions that are designed to further improve safety (e.g. strengthened conflict of interest provisions relating to inspections; these are discussed below).

With respect to practical and low-cost implementation, the PR rated highly because the changes are incremental in nature, and they build on a legislative and regulatory apparatus that has been in place for a decade. The PR were rated more highly than the preceding alternatives with respect to administrative costs for industry and government. This is because of the modest nature of the associated administrative costs, the expected positive impact on safety, and the incremental nature of the changes. The administrative costs are examined in detail below.

The PR were assessed as having a greater impact on competition than the preceding alternatives because the PR include conflict of interest provisions that prevent, inter alia, an LEI from inspecting his or her own work. The conflict of interest provisions in the PR are examined in detail in the following section.

Table 4.4: MCA of Alternative 2

Criteria	Score
Effectiveness in maintaining and improving safety	95
Practical implementation	90
Low administrative costs to industry and government	85
Low competition impact	85
Weighted score	90

The key objective of the PR is to promote the safety of electrical installation work. The concept of the 'value of a statistical life' (VSL) is a benchmark for comparing the benefits associated with reduced harms to human life against the costs of the PR. Placing a dollar value on human life is inherently difficult. On a number of grounds, the value of a human life may be considered inestimable. However, for public policy purposes a reasoned estimation of the valuation of a life may assist in providing better regulatory outcomes. For example, a VSL comparison can provide agencies with an estimate of the economic value of reducing fatalities through a particular regulation or alternative to regulation (e.g. mandating seat-belts in vehicles, fencing around pools, scaffolding on constructions sites).

The most recent analysis for the Commonwealth Office of Best Practice Regulation found that a VSL estimate of between $3 million and $4 million for avoiding an immediate death of a healthy individual in middle age (about 50 years) or younger was reasonable.[20] Accordingly, a VSL estimate of $3.5 million was adopted for this RIS.[21]

Costs of the Proposed Regulations

Each of the PR was examined for the administrative costs it would impose on electricity industry participants. Those regulations that would impose administrative costs were examined using the Victorian Standard Cost Model methodology. Data were drawn from ESV, the VCEC Guidance Notes and information provided by industry stakeholders. Where data were not available, assumptions were made using the best available information (see Assumptions at Appendix C).

[20] Abelson (2007).

[21] Another approach is to examine compensation claims in relation to awards paid for severe injury. Abelson (2003) examined compensation claims for severe injuries in NSW and found that of the 20 awards made for severe brain injury, the average award from 1991 to 2002 was $2.2 million (in 2002 dollar terms). Abelson, P., August 2003, *Is Injury Compensation Excessive?,* Research Paper: Number 6/2003, Macquarie University, p. 13.

Each regulation that imposes a burden was costed for Year 1 and then a 10-year Present Value calculation was made of the estimated cost of the regulation over its 10-year life. The results of the cost calculations are summarised in Table 4.5. Overall, the costs imposed by the PR on the industry over a 10-year period were estimated to be $12 million or approximately $1.2 million per annum. The costs relate primarily to administrative costs, while some costs were substantive compliance costs (relating to training in tree-clearing).

Table 4.5: Estimated annual administrative costs imposed on industry by the PR (current year figures)

Regulation	Description of costs associated with the regulation	Cost
204	Person adopting a Part 1 solution must obtain written consent from the installation owner. Person adopting a Part 1 solution must maintain documentation detailing the nature and extent of the solution, where the part 1 solution has been used, why regulation 202 could not be met, and how compliance with 204(2)(a) & (b) was achieved.	$26,490
221	Responsible person substantially reconstructing a private aerial line must obtain a written undertaking from the owner that they will have the electric line placed underground within 60 days.	$4,537
243(1)	LEI must give electronic notification of completion of the certificate of inspection to ESV within 2 business days.	$1,104,853
248	If electrical installation work does not comply with the Act or the Regulations, the LEI must notify the electrical contractor or installation worker of the defects within 2 business days.	$1,119,019
253(1)	Person responsible for the carrying out of electrical installation work must give electronic notification of completion of the certificate of compliance to ESV within 2 business days.	$5,030,414
256	Electrical worker, operator of a high-voltage installation or any other responsible person who becomes aware of a serious electrical incident must as soon as practicable report all details of the incident to ESV. Person referred to in 256(1) must within 20 days send a written report to ESV. Electrical worker, operator of a high-voltage installation or any other responsible person who becomes aware of an incident in which a person has made accidental contact with any electrical installation or received an electric shock as the result of direct or indirect contact with any electrical installation, must within 20 business days send a written	$1,845,891

Regulation	Description of costs associated with the regulation	Cost
	report to ESV.	
319	Person engaged in tree clearing work who holds a current certificate of a tree clearing course approved by ESV is not bound by 304. Person engaged in tree pruning or clearing work who holds a current certificate of a tree clearing course approved by ESV is an authorised person for the purposes of 319.	$2,317,279
401	Application for exemption from the PR must be in writing and include the applicant's contact details, the exemption requested, the reasons, and any relevant technical information. Person applying for exemption under 401 must obtain written agreement from the owner, occupier or controlling body of the land on which the work is to be carried out, and include the written agreement in the application for exemption.	$149,888
Total		**$11,598,370**

Government administrative costs

The PR impose administrative obligations on government. As part of the RIS, estimates were prepared of these costs. The administrative requirements and the associated costs are shown in Table 4.6 below. Overall, the cost to the Victorian Government of administering the PR is estimated to be $19 million (discounted at 3.5 per cent) over a 10-year period, or approximately $1.9 million per annum.

Table 4.6: Estimated annual administrative costs imposed on ESV by the PR (current year figures)

Regulation	Description of costs associated with the regulation	Cost
204	Consultation with respect to Part 1 solutions.	$11,904
243(1)	Receiving and processing, from the LEI, electronic notification of completion of the certificate of inspection.	$188,788
250	If electrical installation work does not comply with the Act or the Regulations, ESV may notify the REC or LEIW responsible for carrying out the work, of the defects in the work.	$286,812
253	Receiving and processing, from the person responsible for the	$1,146,070

Regulation	Description of costs associated with the regulation	Cost
	carrying out of electrical installation work, electronic notification of completion of the certificate of compliance.	
256	Receiving and processing initial report from electrical worker, operator of a high-voltage installation or any other responsible person who becomes aware of a serious electrical incident (256(1)). Receiving and processing written report from person referred to in 256(1). Receiving and processing written report from electrical worker, operator of a high-voltage installation or any other responsible person who becomes aware of an incident in which a person has made accidental contact with any electrical installation or received an electric shock as the result of direct or indirect contact with any electrical installation (256(3)).	$576,749
319	Approving tree-clearing courses for the purposes of 319.	$1,488
401	Receiving and processing application for exemption from the PR.	$119,040
Total		**$2,330,850**

Compliance costs of the PR

In addition to imposing administrative costs, the PR would impose substantive compliance costs relating to prescribed standards for electrical installation work. For example, the PR require cables to be buried to particular depths, and aerial lines to be elevated to specified heights and distances. The prescribed standards are based on the WR and other industry standards, and represent good practice. Accordingly, the compliance costs of the PR are only minimal or incremental over and above the costs that would be incurred by firms operating prudently and safely at industry good practice but in the absence of the PR. Given the difficulty of assigning a monetary value to these incremental compliance costs, the costs are noted rather than quantified. In aggregate, the substantive compliance costs are expected to be small.

Total quantified cost of the PR

The total quantified cost of the PR is shown in Table 4.7 below and is in the order of $3.1 million over a 10-year period.

Table 4.7: Total cost of the PR over the 10 year assessment period (discounted)

Industry and government administrative costs	Total cost	Annual cost
Industry	$11,714,481	$1,171,448
Government	$19,384,762	$1,938,476
Total	$31,099,243	$3,109,924

Comparison of costs and benefits of PR

The estimated annual cost of the PR is $3.1 million. Accordingly, given the VSL estimate of $3.5 million, the benefits of the PR would outweigh the costs if the PR prevented one death per year.

Alternative 3: Adopt a set of new regulations that differ from the PR in regard to safety standards for electrical installation work

This alternative would see the adoption of a new set of Regulations that differed from the PR in regard to safety standards and requirements. The PR are based on industry standards and practice. To the extent they differ from the CR and industry standards, the differences are matters of clarification, practice improvement and addressing identified gaps. The PR explicitly allow innovation and better-than-industry practice. Accordingly, an alternative set of Regulations would be inferior to the PR with respect to required behaviours and practices, and, therefore, safety outcomes. Alternative 3 is therefore assessed as marginally weaker than alternative 3 in relation to the criterion of maintaining and improving safety.

Alternative 3 was assessed as being equivalent to Alternative 3 with respect to the criterion of practical and low-cost implementation. Ongoing administrative costs for industry and government would be marginally higher than for Alternative 3 because of the inferior safety outcomes. Alternative 3 was assessed was having a competition impact that is low, but marginally higher than Alternative 2. This is because Alternative 3 has been designed to have the minimum competition impact while achieving high quality safety outcomes, so deviations from that approach are likely to involve higher competition impacts.

Stakeholders may wish to comment on possible variations to specific provisions in the PR, including:

- administrative requirements in the PR and how these could be further streamlined; and

- any practical difficulties associated with the PR.

Table 4.8: MCA of Alternative 3

Criteria	Score
Effectiveness in maintaining and improving safety	90
Practical implementation	90
Low administrative costs to industry and government	80
Low competition impact	80
Weighted score	86

Alternative 4: Incorporate the PR into the Electricity Safety Act 1998

The final alternative is to incorporate the PR into the *Electricity Safety Act 1998*. In the short term, this would deliver similar benefits to the PR (Alternative 2). This alternative is assessed as rating high against the criterion of maintaining and improving safety. Its practicality is lower than the options that involve remaking regulations, however, as Alternative 4 requires legislative amendment. Under this alternative there would be an additional initial cost due to the need to amend the legislation, and over time there would be significant additional costs because minor changes to the regulatory requirements would require legislative amendment. There would be a concomitant cost in the form of reduced flexibility.

Associated administrative costs would be low for industry, though there may be costs associated with the reduced flexibility of the regulatory regime. The alternative would have a minimal competition impact.

Table 4.9: MCA of Alternative 4

Criteria	Score
Effectiveness in maintaining and improving safety	95
Practical implementation	85
Low administrative costs to industry and government	80
Low competition impact	85
Weighted score	88

Summary of analysis of five alternatives

Table 4.10 summarises the results of the MCA analysis. The table shows that Alternative 2 (the Proposed Regulations) scored highest on the MCA analysis and is therefore the preferred option. The key difference between the preferred option and the alternatives related to effectiveness in achieving the safety objectives of the Act.

Table 4.10: Summary of MCA of overall alternatives

Regulatory alternatives	MCA weighted score
1. Self-regulation	77
2. Prescribe the WR and other relevant standards (PR)	90
3. Different set of new regulations	86
4. Incorporate the PR into the Electricity Safety Act 1998	88

4.3 Options regarding the relationship between LEIs, LEIWs and RECs

The CR seek to maintain and improve safety by restricting what an LEI can inspect. There are several potentially viable alternatives to the approach in the CR. Some have been the subject of industry consultation during 2008. Eleven options regarding the relationship between LEIs, LEIWs and RECs were identified in the development of this RIS. The options were costed and were analysed using MCA. For the purposes of the MCA, the same four criteria and the same weightings were used as for the analysis of the five overall alternatives:

1. effectiveness in maintaining and improving safety (40 per cent);

2. practical and low-cost implementation (20 per cent);

3. low ongoing administrative costs for industry and government (20 per cent); and

4. low impact on competition (20 per cent).

Option 1: Do not remake the CR relating to the relationship between LEIs and RECs

Under this option, regulation 407(4) would not be remade. Regulation 407(4) is a mechanism for ensuring that LEIs operate effectively and independently from RECs and LEIWs. It provides that *'The LEI inspecting the prescribed electrical installation work must not be the licensed electrical installation worker who carried out the work or any other person referred to in section 41A of the Act who is responsible for the carrying out of the work'.*

Accordingly, without 407(4) there would be no specific restrictions on the relationship between LEIs, LEIWs and RECs in relation to inspections. It would therefore be possible, for example, for the LEI to be the same LEIW who carried out the installation work being inspected, or the same REC who was responsible for the carrying out of the work. The associated conflict of interest would be a clear weakness in the regulatory framework, and would undermine the division of roles defined in the Act. The main consequence of not remaking the conflict of interest provision (407(4)) would be a reduction in the reliability of inspections, and therefore a reduction in the safety of electrical installation work.

The MCA of this option is shown in Table 4.11. The impact on safety is assigned a score of 60, reflecting the fact that, while not remaking 407(4) would weaken the safety regime, the remaining provisions of the regulations would continue to have a positive, though diminished, safety impact. Not remaking 407(4) is practical to implement, though there would be some transition costs in explaining the new regime to industry. The option is likely to have an associated indirect administrative cost through the increased number of safety incidents. The competition impact of removing the conflict of interest provision is assessed as being a nil impact.

Table 4.11: MCA of Option 1

Criteria	Score
Effectiveness in maintaining and improving safety	50
Practical implementation	90
Low administrative costs to industry and government	80
Low competition impact	100
Weighted score	74

Option 2: Maintain the CR regarding the relationship between LEIs and RECs

Under this option, the existing conflict of interest provision (407(4)) would be remade without change. RECs would continue to contract LEIs to carry out inspections. LEIs would not be able to inspect their own work, and they would continue to be subject to audit by ESV. Targets for audit would continue to be randomly selected for each inspection zone. The type of job or the work history of the person performing the work would not be considered.

This ‘no change’ option has the advantage that it reflects current practice and expectations, and that it would entail no additional costs. By removing the potential for conflict of interest where an LEI inspected his or her own work, Option 2 would generate improved safety outcomes compared with Option 1. The compliance and administrative costs for industry and government are assessed as low under this option. Implementation

costs would be zero (i.e. meets criterion 100 per cent). The impact on competition is assessed as low, though marginally greater than the 'laissez faire' Option 1.

Table 4.12: MCA of Option 2

Criteria	Score
Effectiveness in maintaining and improving safety	75
Practical implementation	100
Low administrative costs to industry and government	90
Low competition impact	90
Total	84

Option 3: Add provisions that proscribe inspections where the LEI designed the work or was an employee of the REC or a related body corporate

This option involves two additional measures to ensure that LEIs operate effectively and independently from LEIWs and RECs. The option would expand the conflict of interest provisions in the regulations such that, in addition to the exiting conflict of interest provision, an LEI also:

- must not have been involved in the design of the electrical installation work being inspected; and
- must not be employed in any capacity by the responsible person or a related body corporate.

These additional provisions are incremental in nature and are closely aligned to the existing provision (407(4)). The second measure in particular can be seen as correcting an anomaly in the CR where an LEI could be engaged to inspect the work of colleagues or co-workers.

Under Option 3, the impact on safety is assessed as higher than in Options 1 and 2, as the stronger conflict of interest provision would likely enhance safety by strengthening the independence of LEIs. The implementation costs are likely to be minimal due to the incremental nature of this option. Some costs would need to be incurred to inform industry of the new obligations.

The ongoing compliance and administrative costs in Option 1 are assessed as equivalent to those in Option 2; there is likely to be a marginal decrease in the costs to government, due to the reduction in incidents and accidents; and there is likely to be an offsetting marginal increase in the cost to the industry, due to the need to ensure systems and processes are in place in larger firms to prevent a breach of the new provisions. The

competition impact is assessed as low, though higher than in Option 2 as Option 3 entails an additional restriction on the operation of LEIs and RECs.

Table 4.13: MCA of Option 3

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	95
Low administrative costs to industry and government	90
Low competition impact	85
Weighted score	86

Option 4: Preceding option, and undertake more compliance audits according to the pattern of complaints

Under this option, the conflict of interest measures described in Options 2 and 3 would be remade and adopted respectively, and the associated compliance audit program would be expanded. The additional audit resources would be deployed in an audit program based on the profile of complaints against inspectors. The expanded audit program would build on the existing compliance team and resources, and the existing audit powers and administrative arrangements.

This option is assessed as having a more positive impact on safety than Options 2 and 3, due to the impact of the expanded audit function on the conduct and effectiveness of LEIs and other participants. The option would be practical to implement as it involves the use of existing powers and procedures. There would be some transition costs due to recruitment of the additional audit staff.

The cost to government is higher under option 4 due to the cost of the expanded audit function for prescribed installations. A credible audit function would require at least two additional staff (FTE). Assuming that at least 81 per cent of the time of the two staff was productive audit time, this would translate into the following profile of additional audits each year:

- 300 small audits (average time 5 hours);
- 50 medium-sized audits (average 20 hours); and
- 10 large audits (average 40 hours).

The enhanced audit program has no competitive impact (because jobs for audit would be selected based on the pattern of complaints) and so the competitive impact of this option is assessed as the same as Option 3.

Table 4.14: MCA of Option 4

Criteria	Score
Effectiveness in maintaining and improving safety	90
Practical implementation	90
Low administrative costs to industry and government	85
Low competition impact	85
Weighted score	88

Option 5: Preceding option, and undertake more proactive audits (the Proposed Option)

This option is the same as Option 4, except that the enhanced audit program would include a greater component of proactive, risk-based audit.

Under this option, the audit program would take into account pattern of complaints, as well as the following factors when selecting jobs for audit:

- time since the previous audit;
- results of previous audits;
- experience;
- type of license held;
- type of work carried out;
- any known issues (e.g. complaints);
- recording of defects; and
- use of inspection certificates .

From time to time, the audits could also concentrate on selected geographic areas within each zone. This would reduce travel time, particularly in rural areas, and provide an opportunity for ESV to raise its profile in the area. Planning for audits could also consider whether the proportion of an LEIs inspection activity is high in relation to a particular REC (e.g. the REC uses the same LEI for more than 30 per cent of its prescribed work in the metropolitan area and 50 per cent in regional areas).

ESV is presently moving to establish on-line lodgement of certificates of inspection. This would assist an enhanced audit function, as electronic lodgement would allow more timely audits and would better inform the selection of jobs for audit.

This option is assessed as having a higher impact on safety because a proactive, risk-based approach would be a more effective audit regime than one solely based on the pattern of complaints. This option is practical to implement because, like Option 4, it would involve the use of existing arrangements and powers.

The ongoing cost is the same as for Option 4 because it entails the same scale of audit program, notwithstanding that it is directed differently. The audit program would have no competitive impact (because jobs for audit would be selected based on complaints and on objective risk and materiality factors). Accordingly, the competition impact is assessed as the same as for Options 3 and 4.

Table 4.15: MCA of Option 5

Criteria	Score
Effectiveness in maintaining and improving safety	95
Practical implementation	90
Low administrative costs to industry and government	85
Low competition impact	85
Weighted score	90

Option 6: Prescribe work-shares so that multiple LEIs must be used

In its 2008 communications with the industry, ESV flagged the option of making wide-ranging changes to the relationship between RECs and LEIs. In particular, the following changes were provided for consultation:

- on multi-unit developments requiring five or more COES inspections, the REC must not have any one LEI complete more than 50 per cent of the inspections; and

- in any calendar year, an REC must be able to demonstrate that it has not used the same LEI for more than 30 per cent of their work in the metropolitan area or 50 per cent of their work in the regional area unless they are in an area deemed remote by ESV.

These changes would represent a significant departure from how conflicts of interest are addressed under the CR (via regulation 407(4)). As part of the RIS process, this option was assessed against the four criteria set out above.

The impact on safety was assessed as falling between Options 3 and 4; the conflict of interest provisions would be stronger than under Option 3, but there would be no expanded audit function of the type described in Options 4 and 5.

Implementing Option 6 would entail significant practical difficulties for industry and government. From the point of view of industry, new information gathering arrangements would need to be established, so that RECs had accurate information about their LEI work shares and could predict reliably the inspections that they would require in a given period. From the point of view of government, the option would require a significant education campaign and marketing effort, particularly if the industry opposed the option, which is likely. In the transition period it is likely that there would be significant scope for inadvertent breaches of the regulations; ESV would need to develop new enforcement systems and business rules.

The administrative costs of Option 6 are assessed as high both for industry and government. Apart from the ongoing information gathering costs, RECs would likely face increased inspection costs. RECs would have a weaker ability to choose between LEIs, so the competitive pressure on LEIs' pricing and performance would be weaker. This would be particularly severe in areas where there are shortages of LEIs. In such areas, LEIs could have significant market power under this option. The costs for government include ongoing information gathering and enforcement costs, and dealing with questions and complaints under the new arrangements.

The competitive impact of this option would be significant. The share arrangements would limit the range of outputs and services that an LEI could offer, because it would be restricted from being a 'full service' provider on multiple installations or across a high share of an REC's work. (See Appendix E for the competition criteria.) While this option could encourage the entry of LEIs into the market, because RECs would need to use a higher number of LEIs, this effect is likely to be small given the number of active LEIs and the number who are currently electing to be inactive.

Table 4.16: MCA of Option 6

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	40
Low administrative costs to industry and government	40
Low competition impact	40
Weighted score	58

Option 7: Centralise booking of LEIs through the zone inspection companies

Under this option, RECs seeking inspection services would be directed to the appropriate zone inspection company, based on the postcode of the job. The inspection company would then arrange for an LEI to attend (either an independent LEI, one of the inspection

company's employees or a sub-contracted LEI). The zone inspection companies would share inspectors around their region to manage how often an inspector worked with an REC.

The safety impact of this option is assessed as the same as Option 6. However, in potentially addressing one conflict of interest issue, this option creates another potential conflict of interest between the zone inspection companies and independent LEIs who are competing with the zone companies for inspections.

This option would entail significant implementation and transition costs, and higher ongoing costs due to the need for additional staff to manage bookings and administration. Some LEIs may not be prepared to continue working as LEIs under this model. There would be a risk of delays in obtaining inspection services as there would be an additional process step (booking and work allocation). If this risk eventuated, there would be additional costs for developers and other downstream users and customers of LEI services.

This option involves a significant competition impact, as work allocation would be through a booking system rather than the open operation of the market.

Table 4.17: MCA of Option 7

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	30
Low administrative costs to industry and government	30
Low competition impact	20
Weighted score	50

Option 8: Centralise booking of LEIs through ESV

Under this option, RECs seeking inspection services would contact ESV, which would allocate LEIs to carry out inspections. LEIs would be paid by the RECs for the inspection services. The basis of the work allocation would need to be fair and equitable and be seen to be so.

The safety impact of this option was assessed as the same as Option 7, however government administration costs would increase significantly. This option would require a work management system and additional resources within ESV to administer the system and to cover other associated administrative costs. (These costs would apply whether the booking and allocation system was conducted in-house or outsourced.)

Like Option 7, under Option 8 there would be a risk of delays in obtaining inspection services as there would be an additional process step involving booking and work allocation. Transition costs would be high, especially as some LEIs would likely not be prepared to continue working as LEIs under this arrangement. Like Option 7, this option would entail a significant impact on competition.

Table 4.18: MCA of Option 8

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	25
Low administrative costs to industry and government	20
Low competition impact	20
Weighted score	47

Option 9: Replace the network of independent LEIs by engaging inspectors through the zone inspection companies

Under this option, each zone inspection company would handle the inspections for work within its zone. The LEIs would work directly for the zone inspection company as employees or sub-contractors. RECs would pay the zone inspection company for the inspection services.

The safety impact of this option was assessed as the same as Option 8. This option would involve still higher implementation risks and ongoing costs. Most importantly, this option would involve a very significant competition impact, as one decentralised part of the industry would be replaced by three or four firms.

Table 4.19: MCA of Option 9

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	10
Low administrative costs to industry and government	10
Low competition impact	10
Weighted score	40

Option 10: Replace the network of independent inspectors by engaging inspectors through ESV

Under this option, ESV would employ the LEIs. An REC requiring an inspection would contact ESV who would arrange for one of its LEIs to inspect the installation work. The safety impact was assessed as the same as for Option 9. Transition costs would be very significant both for the industry and government, as would the risks of delays and disruption to electrical installation work, and therefore to construction activity and the economy more broadly.

Based on the requirement to complete 80,000 inspections per year, as well as some additional duties, it is estimated that 60 LEIs would need to be employed by ESV, at a gross cost of $8.8 million per annum. ESV would collect fee revenue from RECs for inspection services. The net additional cost would be approximately $543,000; this represents the cost of three additional staff plus invoicing and consumables associated with employing the inspectors and arranging and administering inspection jobs.

This option entails a very significant competition impact. ESV would become a monopoly supplier of electrical installation inspection services.

Table 4.20: MCA of Option 10

Criteria	Score
Effectiveness in maintaining and improving safety	85
Practical implementation	10
Low administrative costs to industry and government	10
Low competition impact	10
Weighted score	40

4.3.1 Summary of results of options analysis

Table 4.22 shows the MCA scores of the ten options. The PR achieved the highest weighted score against the criteria.

Table 4.22: MCA scores of eleven options relating to effective and independent inspections

Option	1	2	3	4	5	6	7	8	9	10
Effectiveness in maintaining and improving safety	50	70	80	90	95	85	85	85	85	85
Practical implementation	90	100	95	90	90	40	30	25	10	10
Low administrative costs to industry and government	80	90	90	85	85	40	30	20	10	10
Low competition impact	100	90	85	85	85	40	20	20	10	10
Weighted score	**74**	**84**	**86**	**88**	**90**	**58**	**50**	**47**	**40**	**40**

4.3.2 Costings of options relating to effective and independent inspections

In 2007, ESV commissioned a report from Marksman Consulting Services containing costings of various reform options regarding inspection by LEIs.[22] For the purposes of this RIS, the relevant Marksman cost estimates have been adjusted for the effect of inflation and to include overheads and on-costs. Table 4.23 shows the estimated cost of each of the eleven options considered in the preceding section. Options 1, 2 and 3 are the lowest cost options, and options 9 and 10 are the highest cost options.

[22] Marksman (2007).

Table 4.23: Costings of ten options relating to inspection of electrical installation work

Option	Estimated direct incremental cost
Option 1: Do not remake the CR	Nil
Option 2: Maintain the CR	Nil
Option 3: Proscribe inspections where the LEI designed the work or was an employee of the REC or a related body corporate	Nil
Option 4: More audits according to the pattern of complaints	$294,000[(1)]
Option 5: More proactive audits	$294,000 [(1)]
Option 6: Prescribe work-shares for inspections	$294,000 [(2)]
Option 7: Centralise booking through zone companies	$294,000 [(3)]
Option 8: Centralise booking through ESV	$294,000 [(3)]
Option 9: Hiring through the zone companies	$543,410[(4)]
Option 10: Hiring through ESV	$543,410 [(4)]

Notes: The cost estimates exclude indirect costs, and exclude transitional costs associated with education and marketing. Education and marketing costs are estimated to be in the vicinity of $100,000 (one-off). (1) Costs for Options 4 and 5 represent the cost of two additional staff plus associated overheads and on-costs. These staff and overhead costs include the cost of developing associated in-house systems and methodologies for the new audit programs. (2) Costs represent two additional staff (plus overheads and on-costs) for expanded monitoring and compliance activities. Includes development cost for monitoring and compliance framework. (3) Cost represents two additional staff (plus overheads and on-costs) to perform central booking function. Includes development of booking system. (4) Cost represents three additional staff plus overheads and on-costs, and the cost of invoicing ($50,160) and associated consumable costs ($52,250). Staff, invoicing and consumable costs were drawn from Marksman (2007), adjusted for inflation (CPI). Overheads and on-costs were calculated using the multiplier from the Victorian Guide to Regulation.

4.4 Summary of assessment of feasible alternatives

On the basis of the above analysis, this RIS concludes that:

- the benefits to society of the PR are expected to exceed the costs (i.e. there is a net benefit); and

- the net benefits of the PR are greater than those associated with any practicable alternative.

The PR were assessed as providing the most effective and efficient mans to promote the safety of electrical installation work.

5. FEES

5.1 Fee-setting principles

In September 2007 the Victorian Government released its *Cost Recovery Guidelines* to clarify the policy principles underpinning cost-recovery arrangements in the Victorian public sector.[23] The Guidelines establish a whole-of-government framework for ensuring that cost-recovery arrangements in Victoria are transparent, efficient, effective and consistent with legislative requirements and policy. The Guidelines reflect the principle that properly designed cost-recovery arrangements can deliver both equity and efficiency benefits to the community, while poorly designed arrangements may create inappropriate incentives and undermine the achievement of other government objectives.

'Cost-recovery' is the recuperation of the costs of government-provided or government-funded products, services or activities that, at least in part, provide private benefits to individuals, entities or groups, or reflect the costs that their actions impose. The Guidelines apply to cost-recovery arrangements of government departments and general government agencies and include recovery of costs incurred by government in administering regulation (e.g. issuing permits, monitoring compliance, investigations and enforcement).

Under the *Cost Recovery Guidelines*, the default position or 'null hypothesis' is that regulatory fees and user charges will be set on a full cost-recovery basis. Deviations from full cost-recovery are exceptional. This is because full cost-recovery ensures both efficiency and equity objectives are met. The efficiency and equity objectives were used below to assess fee options for the PR. Full cost represents the value of all the resources used or consumed in the provision of an output or activity.

Another principle in the Guidelines is that full cost-recovery should be based on recovery of 'efficient costs'. Costs may be inflated by poor administration or other practices when departments and agencies know that costs will ultimately be recovered from other parties. Therefore, best practice cost-recovery arrangements need to ensure that charges are based on the minimum cost-recovery necessary — or efficient costs — to deliver the product or activity and still maintain quality and achieve government objectives over time.

Determining the appropriate fee-setting regime requires consideration of the outputs and outcomes that arise from the relevant activities. If it is determined that full cost-recovery is not consistent with other government policy objectives, then it may not be appropriate to introduce a full cost-recovery regime. In that case, consideration could be given to a regime of partial cost-recovery (if it could be demonstrated that less than full cost-recovery would not jeopardise other objectives), and to the option of relying on other funding sources (e.g. general taxation) to finance the relevant output or activity.

[23] Department of Treasury and Finance, 2007, Cost Recovery Guidelines: Incorporating the information formerly published in the Guidelines for Setting fees and User-Charges Imposed by Departments and Central Government Agencies, Melbourne.

5.1.1 Cost-recovery options for electrical installations

The Victorian Government's general policy is that fees should be set on a full cost-recovery basis. There are cases, however, where government agencies may wish to set fees at a partial or zero cost-recovery basis.[24] For the purposes of this RIS, the following feasible fee options were considered:

- Fee Option A – full cost-recovery (relevant fee based on 100 per cent of the average costs, both direct and indirect) of certificates and exemptions, based on future efficient costs; and

- Fee Option B – partial cost-recovery (fees based on 50 per cent of average costs).

For the purposes of this RIS, the 'base case' is defined as having no fees or zero cost-recovery as would be the case if the proposed fee regulations were not remade.

MCA analysis was used to assess the fee options. Reflecting the Cost Recovery Guidelines, the following criteria were used:

- efficiency – fees set at a level to promote the efficient allocation of resources;

- equity − fees set at a level to promote the sharing of costs and benefits across society; and

- simplicity − fees design should be free from unnecessary complexity. Complexity may affect compliance and makes administering the fees more costly and difficult.

The 'efficiency' criterion was assigned a weighting of 70 per cent, reflecting its overall importance achieving the Government's policy objectives in relation to fee setting, while the 'equity' and 'simplicity' criteria were each assigned a weighting of 15 per cent.

The Base Case

With respect to the 'base case', zero cost-recovery would result in the Victorian community fully subsidising government outputs and activities provided in relation to electrical installation work, in the order of $7 million per annum. The key activity of relevance here is the management of the COES system, including the printing and distribution of certificates, and monitoring and compliance functions. Fully subsidising these costs is not appropriate as the relevant costs and benefits fall mainly on a defined group of people (namely electricity industry participants and other people responsible for electrical installation work) and the collection of fees from certificate and exemption transactions is straightforward, with the administrative arrangements well established. Therefore, the discussion now turns to cost-recovery options.

[24] For example, it may wish to encourage the 'over consumption' of some goods such as art galleries by charging no fee (e.g. the Ian Potter Centre, National Gallery of Victoria) or it may choose to partially recover other fees (e.g. entry fees to museums or national parks). Partial cost-recovery may also be considered on equity grounds; for example, pensioner discounts or concessions for welfare recipients.

Impact of fees

The major economic impact of the fees in the PR is that they would add to the cost of electrical installation work. This may deter certain persons or businesses from complying with the COES system and aspects of the PR. The key benefit of collecting fees is that they would recover the cost of ensuring compliance with the statutory requirements relating to certificates and exemptions. Table 5.1 below summarises the benefits and costs associated with the PR in relation to fees.

Table 5.1: Benefits and costs of the fees

Benefits	Costs
Cost-recovery from the direct beneficiaries of the regulation. Maximum fee levels in line with government policy, and promotes efficient allocation of the community's resources. Removes subsidies and cross-subsidies.	Increase costs for consumers and businesses. Could discourage compliance at the margin.

Option A – Full cost-recovery

In this case, full cost represents the value of all the resources used or consumed in relation to the COES and exemptions under the PR. A departure from full cost-recovery would result in the Victorian community providing a subsidy in relation to electrical installation work, and would require increases in taxation or expenditure cuts in other areas. At the margin, full cost-recovery may also deter compliance (e.g. where an REC considered the costs of seeking an exemption too high).

Full cost-recovery should be based on the recovery of 'efficient costs': the minimum costs necessary to deliver the relevant product or activity while maintaining quality and achieve government objectives over time. ESV is increasingly adopting on-line systems for industry participants to comply with regulatory requirements. As well as simplifying compliance, these systems are likely to result in cost savings, and these savings are reflected in the proposed fee levels. Given that full cost-recovery is the most economically efficient option for fee levels, and is consistent with government policy and community expectations, Fee Option A is assigned a high score in terms of efficiency. Fee Option A fully captures current costs as well as the impact of cost savings expected in the future.

A lower score of 25 is assigned to the equity criterion because the fees are not based on a person's or business's ability to pay. For the 'simplicity' criterion, full cost-recovery scores the relatively high score of 75 given that all COES and exemption fees will continue to be set on the current basis (i.e. COES fees for prescribed, non-prescribed and periodic certificates, and exemption fees payable per exemption sought). Accordingly, full cost-recovery (based on future efficient costs) received a net score of 71 in the MCA.

Table 5.2: MCA of Fee Option A

Criteria	Weighting	Assigned score	Weighted score
Efficiency	70%	80	56.00
Equity	15%	25	3.75
Simplicity	15%	75	11.25
Total	100%		71.00

Option B – Partial cost-recovery

Partial cost-recovery entails establishing some level of 'public good' associated with the regulation of electrical installation work. It is true that wider benefits do accrue to the community from ensuring electrical installation work is safe. However, this RIS finds that it is difficult to establish that strict 'public good' characteristics (i.e. non-rivalry and non-excludability) are associated with electrical installation work. Rather, the costs and benefits associated with electrical installation work fall primarily on industry participants, and users and customers of installation work.

Partial recovery of, say, 50 per cent of costs would represent a significant departure from the Government's general policy that regulatory fees should be set on a full cost-recovery basis. Partial cost-recovery would represent a taxpayer subsidy equivalent to half of the COES and exemption fee collections over the life of the PR. Consequently, a score of 50 was assigned to the efficiency criterion, which is a significant improvement over the base case, but notably inferior to full cost-recovery.

A lower level of fees would generally improve equity, and a relatively high score of 50 is assigned to this criterion. Fees calculated on a partial cost-recovery basis would be marginally more complex to administer compared with full cost-recovery, and hence a score of 50 is assigned to this criterion. Overall, this assessment results in a net score of 50.

Table 5.3: MCA of Fee Option B

Criteria	Weighting	Assigned Score	Weighted Scored
Efficiency	70%	50	35.0
Equity	15%	50	7.5
Simplicity	15%	50	7.5
Total	100%		50.0

5.2 Cost-recovery approach for Proposed Regulations

The PR include fees for purchasing certificates of electrical safety and for applications for exemptions under regulation 401. In the PR, fees are expressed in fee units. The value of a fee unit is presently $11.35. The assessment of fee arrangements in this RIS has been undertaken in accordance with the *Cost Recovery Guidelines*.

Based on the MCA analysis above, the proposed fees will be set on a full cost recovery basis. The costs relate to:

- administration of the certificate of electrical safety (COES) system; and
- processing of applications for exemption.

COES system

Under the COES system, certificates can be purchased by the following methods:

- by telephone through an Interactive Voice Response (IVR) system;
- over the counter at any ESV office (Southbank and Nunawading);
- by mail and facsimile from ESV;
- from an agent (either over the counter from an electrical wholesaler, or from two of the electrical inspection companies and the National Electrical and Communications Association); and
- via the internet.

Each COES has a unique number. At the time of sale, the COES number is registered to the particular REC, LEIW or prescribed person who purchased the certificate. This information is recorded by ESV.

Prescribed certificates cost $20 and can be purchased as singles, as pads of 5 and as pads of 20. Non-prescribed certificates cost $5 and can also be purchased as singles, as pads of 5 and as pads of 20. Periodic certificates cost $500 and can only be purchased as singles, from ESV offices and authorised sellers.

There are 16 agents and 201 agent outlets, most of which are electrical equipment wholesalers. The agents selling certificates are audited once per year to check their security arrangements and to seek assurance that all certificates have been registered. For prescribed and non-prescribed certificates, most sales are made through agents, whereas for periodic certificates, the two major sales methods are mail order and over-the-counter sales at ESV offices.

The costs associated with the COES system account for the majority of costs recovered through the fees in the CR and the PR. The expenses associated with the COES system relate to:

- staff administering the COES system;
- printing and distribution of certificates;
- commissions paid to agents; and
- attributable shares of ESV compliance staff costs, payments to zone inspection companies, advertising, and overheads.

In 2007-08, ESV incurred total costs associated with the COES system of $5,443,853.

The COES fees are presently under-recovering the cost of administering the COES system. In 2007-08, ESV received COES income of $4,839,488. Accordingly, in 2007-08 ESV under-recovered costs in relation to the system of $604,365.

Under Option 5 (the PR), two additional staff would be required to perform the enhanced LEI audit function.

Applications for exemptions

With respect to the costs related to exemptions, there were no applications for exemption under regulation 446 in 2007-08, so all the exemption-related costs were associated with regulation 236. In 2007-08, the exemption application fee raised $10,480.

5.3 Calculation of the proposed fees

As the preceding sections showed, with respect to electrical installation work ESV is presently under-recovering costs in relation to the COES and applications for exemptions to regulations. It is proposed that the new regulations will include new fee levels that would fully recover the costs associated with the COES and exemptions.

The proposed fees are shown in Table 5.4. A detailed description and cost calculations for the fees are contained in Appendix H. In summary, the fees would increase in 2009-10 by an average of 28.8 per cent, and then increase in line with the CPI thereafter. The fees would be expressed in the form of fee units.

Table 5.4: Current and proposed fees

Section/ provision	Description	Current fee ($)	Proposed fee ($)	% Change
45B	COES for prescribed work	20.00	28.50	42.5
45B	COES for non-prescribed work	5.00	7.10	42.0
45B	Periodic COES	500.00	650.00	30.0
45B	COES for prescribed work (electronic)	20.00	25.70	28.5
45B	COES for non-prescribed work (electronic)	5.00	6.50	30.0
reg. 401	Application for exemption	70.00	70.00	0.0

6. CHANGE IN THE ADMINISTRATIVE BURDEN

The *Reducing the Regulatory Burden* initiative commits the Victorian Government to reducing both the administrative and compliance costs of regulation. Accordingly, this RIS uses the Victorian Standard Cost Model (SCM) methodology and *Measurement of Changes in Administrative Burden* to inform its cost-benefit analysis and to measure changes to administrative costs. For the purposes of the measurement of change in the administrative burden, the existing burden forms the base case against which the change is measured.

Administrative costs are those costs incurred by business to demonstrate compliance with regulation or to allow the government to administer the regulation (e.g. keeping a register or lodging documents with the government). The SCM is used solely to measure the administrative costs of regulation. It is not used to measure substantive compliance costs.

The PR involve minimal changes to the administrative burden on business and not-for-profit organisations. The following change in administrative burden has been identified in comparing the proposed regulations with the existing regulations:

> 221(1)(a): New requirement that the responsible person substantially reconstructing a private aerial line must obtain a written undertaking from the owner that they will have the electric line placed underground within 60 days.

The impact of this change on the administrative burden is small. Regulation 221(1)(a) has a cost that can be meaningfully quantified. The estimated cost of that regulation is approximately $550 per annum. Accordingly, under the PR, the increase in the administrative burden would be significantly less than the figure of $250,000 per annum advised by the VCEC as the indicative threshold for materiality. In accordance with the Guidelines issued by the Treasurer, *Measurement of Changes in Administrative Burden*, it has been determined that the regulatory changes in the Proposed Regulation **will not lead to a material change in the administrative burden** on business organisations in Victoria (see Appendix D for the Statement of No Material Impact).

7. COMPETITION IMPACTS

At the Council of Australian Governments (COAG) meeting in April 1995 (reaffirmed in April 2007), all Australian governments agreed to implement the National Competition Policy (NCP). As part of the *Competition Principles Agreement*, all governments, including Victoria, agreed to review all legislation containing restrictions on competition under the following principle:

> The guiding principle is that legislation (including Acts, enactments, Ordinances or Regulations) 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 regulation can only be achieved by restricting competition.

To successfully pass the competition and cost-benefit tests, for each proposed regulation it is necessary to:

> Step 1: Identify the restriction on competition, if any;
>
> Step 2: Show that the restriction, if any exists, is necessary to achieve the objective;
>
> Step 3: Assess the costs to the community caused by the restriction;
>
> Step 4: Assess the community benefits; and
>
> Step 5: Assess whether benefits outweigh the costs.

If no restriction on competition is found in the course of Step 1, it is not necessary to complete the remaining steps (that is, Steps 2 to 5). Issues to be discussed in the NCP assessment relate to whether or not the proposed regulations restrict competition in the relevant market by one or more of various means such as:

- allowing only one company or person to supply a good or service;
- requiring producers to sell to a single company or persons
- limiting the number of producers of goods and services to less than four;
- limiting the output of an industry or individual producers; or
- limiting the number of persons engaged in an occupation.

It should be noted that an earlier draft of the PR contained a restriction on the inspection of electrical installation work at a multiple installation site where more than five certificates of inspection would be required to be issued in any twelve month period. The earlier draft specified the maximum percentage of the inspections on the site which may be undertaken by one inspector. The purpose of this regulation was to ensure probity and reduce risks of client capture. However, stakeholders were consulted about this proposal and

practical difficulties were identified, as well as a reconsideration of the possible costs of this restriction. Consequently, this proposal has been removed from the PR.

The PR were assessed against the step above, and no restrictions on competition were identified. At a much broader level, the Act itself may impose restrictions on competition compared with the base case on no regulatory controls, however it is submitting that the benefits of any such restrictions clearly outweigh the costs.

8. SMALL BUSINESS IMPACT

The *Victorian Guide to Regulation* recommends a special assessment of the impact of the PR on small businesses, recognising that the compliance burden often falls disproportionately on that sector of the economy. [25]

Electrical installations work is primarily carried out by small businesses. Most RECs and LEIs are sole traders, or businesses with fewer than 20 employees. Accordingly, the impact of the PR will fall almost entirely on small business. The changes to the regulations that are aimed at simplifying compliance will predominantly benefit small businesses.

[25] The ABS defines a 'small business' as a business employing fewer than 20 people. ABS Cat. 1321.0 - Small Business in Australia.

9. ENFORCEMENT AND COMPLIANCE

The enforcement and compliance regime under the PR would be a continuation of the regime under the CR.

Offences exist in relation to several provisions of the CR and the PR. The offences are identified in Table 9.1, along with details of proposed changes. The changes comprise:

- selected penalty increases;
- new offences in relation to substantial reconstruction of a private line;
- addressing know cases of serious dereliction of duty by LEIs;
- adding penalties to offences that were previously unenforceable;
- establishing for complex electrical installation the same general duties and offences as for high voltage electrical installations; and
- clarification and redrafting.

Table 9.1: Offences—Electricity Safety (Installations) Regulations

PR	CR	Description	Comment(s)
218(1), (2) & (3)	404(1), (2) & (3)	Route of Underground lines	Penalty removed – to be enforced by section 44 of the Act Record must be in place before underground line is connected or used (previously within 5 days of completion)
221(2)	N/A (New)	Responsible person must comply with r 221(1)	Responsible person must not carry out substantial reconstruction of a private line unless they (a) receive a written undertaking from the owner of the line; (b) provide ESV with a certificate relating to that work within 5 days of completion of the work; and (c) carry out the reconstruction work in accordance with r 220(1).
221(3)	N/A (New)	Owner of private line (temporarily restored) must have the line placed underground or disconnected from supply within 60 days of undertaking	

232	N/A (New)	Safety Services	
233	23(1)NA	Earthing and electrical protection up to protective equipment	
234	23 NA (in part)	Electrical protection of service lines and electricity supplies	
236	N/A (New)	Suppliers must ensure use of double insulation	
237	N/A (New)	Supply of electricity to premises	
239(2)	407(2)	Inspection of prescribed installation work	Provision clarified. Penalty added (previously unenforceable)
241	N/A (New)	Details to be accurate and legible—certificate of inspection	
242	N/A (New)	Obligations of licensed electrical inspectors	This measure addresses know cases of serious dereliction of duty
243	408	Notification of completion of certificate of inspection	Penalty added (previously unenforceable)
244	407(3)	Licensed inspector must retain a copy of certificates of inspection	Applies to paper certificates only (*contra* electronic certificates available online). Penalty added (previously unenforceable)
245	407(4)	Licensed electrical inspector not to inspect own work	Penalty added (previously unenforceable)
246	N/A (New)	Licensed electrical inspector not to inspect work if involved in the design of the work	
247	N/A (New)	Responsible person must not use an employee to inspect any work they are responsible for	

248	408	Notification of defects by inspectors	Revised version of 408 Penalty added (previously unenforceable)
250(3)	409(2)	Notification of defects by Energy Safe Victoria	Penalty increase–10 to 20 penalty units
252	N/A (New)	Details to be accurate and legible—certificate of compliance	
253	412(1)	Notification of completion of certificate of compliance	Penalty increase—5 to 20 penalty units
254	N/A (New)	Responsible person must retain a copy of certificates of compliance	Same obligation as Inspectors. Applies to paper certificates only (*contra* electronic certificates available online).
256(1), (2) & (3)	414(1),(2) & (3)	Reporting of incidents	Penalty increase—5 to 10 penalty units
258	415	Records to be maintained (electricity supplier)	Penalty added—10 penalty units
301(1)	417(1)	General duties—high voltage electrical installations	
302(1)	N/A (New)	General duties—complex electrical installation	Same duties as for high voltage electrical installations. 'Complex electrical installations' are a proposed subclass of 'electrical installations' and are proposed to be inserted in the *Electricity Safety Act* in an upcoming Bill (currently at drafting stage). Complex electrical installations will comprise of Generators with installed generation capacity of 1000kVA and above, and Owners or operators of low voltage or high voltage electrical lines situated on public land, or on private land within an easement (including underground lines). In addition to the regulations applying to electrical installations, complex electrical installations will also be subject to a revised section 75 of the Electricity Safety Act and these duties.

303(1)	418(1)	General duties—small gauge railways	
305	429	Sporting activities	
306(1)	430(1)	Aircraft, kites etc.	
307	431	Entangled objects	
308	432	Blasting and fires	
309	433	Protection of underground electrical installations from damage	Redrafted
310/311	434	Excavating—private land/Excavating—public land and easements	Revised, separate provisions for dealing with lines on private land and lines on public land and easements
312	435	Altering levels	Minor changes
313	436	Minimum distances between parts of buildings, structures, scaffolding and posts and aerial lines	
314	437	Minimum distances between materials and certain aerial lines	Revised
315	438	Minimum distances between parts of vehicles, plant, machinery and aerial lines	
316	439	Minimum distances between transported loads and aerial lines	
317	440	Minimum distances between aerial lines	
318	441	Minimum distances between persons and aerial lines	

319	442	Tree clearing	
320	443	Damage and interference	
321	444	Placing of materials	
401(7)	N/A (New)	A person must comply with any conditions placed on an exemption	(previously unenforceable)

Notes: PR = Proposed regulation. CR = Current regulation. All CR references are to the Electricity Safety (Installations) Regulations 1999 except for references followed by 'NA' which are references to the Electricity Safety (Network Assets) Regulations 1999. N/A = not applicable.

Prosecutions

In 2007-08, ESV completed successful prosecutions against 60 companies and individuals for 279 offences breaching the *Electricity Safety Act* and *Gas Safety Act* and associated regulations. Of these successful prosecutions, prosecutions were initiated against 43 Electrical Contractors/ Workers.

Penalties included 30 undertakings to be of good behaviour, 22 fines without conviction and 10 fines with conviction. Fines totalling $60,600 were imposed and costs against defendants of $74,914.72 were awarded to ESV as a result of the court actions.

Audit arrangements for electrical installation work

ESV undertakes a range of auditing activities for prescribed and non-prescribed electrical installation work. The auditing seeks to assess the level of compliance with the *Electricity Safety Act 1998* and the CR, and to address areas of non-compliance and poor performance. Historically, the majority of ESV's audit activity has related to non-prescribed work. This reflects the fact that non-prescribed work is certified by the person who carried out the work and is not subject to inspection by LEIs.

ESV's authority to audit arises from the Act, which gives ESV the following audit-related functions:

- to inspect and test electrical equipment, electrical installations and electrical work for compliance with the specified safety standards;
- to investigate events or incidents which have implications for electrical safety; and
- to monitor and enforce compliance with the Act and the regulations.

Non-prescribed work

In the case of non-prescribed work, ESV carries out audits via three inspection companies, which act as agents of ESV. For the purposes of these audits, the State is split into four inspection zones, and expressions of interest are sought from businesses that are willing to carry out this work on ESV's behalf.

Currently there are two inspection companies handling a zone each and another company handling the audits in the other two zones. The zone inspection companies may sub-contract other LEIs to conduct the audits in addition to their own staff. As ESV is the only consumer of these audits, it is ESV's policy to spread its audit work among several competent businesses in order to maintain competition in the market for electrical inspection services. It is ESV's view that the granting of audit work to, say, one business would unduly influence this small market and thus reduce competition.

ESV's Information Technology staff select jobs for the zone inspection companies to audit. Jobs are selected randomly for each zone, to cover a set number of audits, including around 10 per cent of jobs with both non-prescribed and prescribed components. The zone inspection companies do not audit the prescribed portions of the work, but do record and report defects on the prescribed portion to ESV and the REC if they are noticed during auditing of the non-prescribed part.

For the purposes of non-prescribed audits by the inspection companies, there are two types of audit:

- technical audit, involving an on-site inspection of the electrical installation work; and

- desk audit, where a discussion is held with the person who is responsible for the carrying out of electrical installation work (these represent around 4 per cent of the total number of audits).

The auditor is required to carry out technical audits at as many installations presented for audit as possible. A desk audit can be carried out instead of a technical audit when either:

- the occupier refuses to allow access for a technical audit; or

- the occupier/owner cannot be contacted after making every reasonable attempt over a seven day period.

Around 33,000 non-prescribed audits are conducted annually, out of around 520,000 certificates lodged, which represents an audit rate of 6 per cent. With respect to an occupier refusing access for a technical audit, ESV advises that this is an extremely rare occurrence and hence is not a significant issue.

Prescribed work

With respect to prescribed work, ESV's audit activities are undertaken by ESV staff rather than the zone inspection companies. The audit activities cover the performance of RECs and LEIWs undertaking prescribed installation work, and the performance of LEIs inspecting the work. The current scale of auditing prescribed work is modest; it accounts for approximately half of one ESV staff member's time (FTE).

10. CONSULTATION

The following organisations and entities were consulted in relation to the PR:

- NECA Executive Council;
- NECA information sessions (eight sessions, and a total of approximately 500 contractors participating);
- ETU;
- Institute of Electrical Inspectors;
- Victorian Customer Electrical Safety Committee;
- Distribution Businesses – New Connection Forum; and
- TAFE conference for managers and administrators of electrical programs.
- SIRF Industrial Maintenance Roundtable Victoria and Tasmania.

Steps were taken to communicate with the industry as a whole. For example, articles on possible options were published in the 'Energy Safe' magazine, which is circulated to all LEIWs in the State. Correspondence was received from RECs and LEIWs in relation to the options and the PR.

The great majority of feedback received during this initial consultation related to the option of mandating work shares for LEIs. The following response from NECA is indicative of numerous other industry participants who voiced opposition to that option:

> 'NECA supports the continuation of the current electrical safety compliance regime based as it is around certificates of electrical safety and inspections by LEIs.
>
> We recognise there have been instances where LEIs and RECs have abused the system, however, we believe this to be a small minority and that this can be addressed by ESV ramping up its audit and compliance regime and its preparedness to undertake disciplinary action including the removal of the licence/registration where necessary and the imposition of significant fines.
>
> However, NECA is strongly opposed to the [work share option] and it is our strong view that this is the wrong approach to address the issues that ESV is concerned about.'

It is noted here that the option that attracted this significant opposition from across the industry is **not the preferred option** and is not proposed.

There is further scope for industry participants and other stakeholders to comment on the PR before their finalisation. The *Subordinate Legislation Act 1994* requires that the public be given at least 28 days to provide comments or submissions regarding the PR. Given time constraints, the consultation period for this RIS will be 29 days, with written comments required by no later than **5.00pm, 27 October, 2009**.

11. EVALUATION AND REVIEW

ESV has administrative oversight of the regulations and provides advice to the Minister for Energy and Resources to improve their efficiency and effectiveness as issues arise. ESV's audit programs for non-prescribed and prescribed work capture data on the level of compliance with the regulations and other matters of relevance to the regulations. Detailed reviews of the audit and defect data are conducted on a quarterly basis by ESV staff.

ESV also has ongoing dialogue with the industry, professional bodies, unions and standards bodies in relation to electrical installation safety and the efficiency and effectiveness of the regulatory arrangements. The Electrical Incident Review and Prevention Committee monitors incidents associated with the risks the PR seek to manage. Should any deficiency arise or new problem emerge, this will be reported to ESV for appropriate resolution.

The PR draw extensively upon the WR and other Australian and New Zealand standards. The standards referred to in the CR are subject to ongoing review through the normal standards-setting processes.

12. CONCLUSION

This Regulatory Impact Statement concludes that:

- the likely magnitude of the benefits to the community of the PR exceed the costs;
- the net benefits of the PR are greater than those associated with any practicable alternative;
- the PR do not impose restrictions on competition; and
- the PR will not materially increase the administrative burden on business.

* * * * *

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APPENDICES

APPENDIX A

AUTHORISING PROVISION — ELECTRICITY SAFETY ACT 1998

Part 13 — Regulations

152. Installation safety

(1) The Governor in Council may make regulations for or with respect to—

(a) safety standards for the design, construction, operation, alteration, repair, maintenance and dismantling of electrical installations;

(b) prohibiting or regulating the construction of electrical installations;

(c) the methods to be followed in carrying out electrical installation work in or in relation to electrical installations;

(d) safety standards in relation to the connection of electrical equipment or apparatus to electrical installations;

(e) safety standards in relation to the connection of electrical installations to an electricity supply;

(f) inspections of electrical installations;

(g) testing of electrical installations and electrical installation work;

(h) the certification of electrical installation work;

(ha) the notification (including electronic notification) to the given to Energy Safe Victoria of completion of certificates of compliance under section 44 or certificates of inspection under section 45 or any classes of those certificates;

(i) reasonable fees to be charged by Energy Safe Victoria for the inspection and testing of electrical installations and electrical installation work;

(j) reasonable fees to be charged for the certification of electrical installation work.

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APPENDIX B

DESCRIPTION OF PROPOSED ELECTRICITY SAFETY (INSTALLATIONS) REGULATIONS 2009

Part 1 — Preliminary: Regulations 101 – 106

Regulation 101 sets out the objectives of the PR.

Regulation 102 sets out the authorising provisions for the making of the regulations under the *Electricity Safety Act 1998*.

Regulation 103 sets out the commencement date.

Regulation 104 revokes the regulations in Schedule 1.

Regulation 105 sets out definitions of terms used within the PR, and defines *the Act* as meaning the Electrical Safety Act 1998.

Regulation 106 modifies some of the definitions contained in the WR and provides definitions of terms used in the Australian/New Zealand Wiring Rules, and that these terms will have the same meanings as they have in *the Act* or the PR and CR.

Part 2 — Electrical Installation Work: Regulations 201 – 258

Division 1- Safety Standards for electrical installations

Regulation 201 provides that if any standard referred to in the PR (including the WR) is inconsistent with the PR, the provision in the PR prevails to the extent of the inconsistency.

Regulation 202 provides that installations and alterations, maintenance and repair of electrical installations must comply with PR and Part 2 of the Australian/New Zealand Wiring Rules.

Regulation 203 provides that installations and alterations, maintenance and repair of domestic electrical installations must comply with PR and Part 2 of the Australian/New Zealand Wiring Rules or with the PR and AS/NZS 3018.

Regulation 204 provides for alternate design and installation method/s (known as a Part 1 solution) which can be used in cases where an electrical installation (or part thereof) (other than a domestic installation) cannot meet the requirements of the PR due to unusual requirements, application or intended use. Regulation 204 further sets out the required compliance, safety standards, approvals, documentation and labelling for a Part 1 solution.

Regulation 205 provides that there must be a main switchboard with main switch/s which control supply to the whole of the electrical installation. Specifies exceptions to this requirement.

Regulation 206 stipulates the requirements for a Multiple Earthed Neutral (MEN) connection (also known as the MEN link) for installations which require to be earthed.

Regulation 207 sets out the connection requirements for a main earthing conductor.

Regulation 208 sets out the neutral earthing requirements with substations.

Regulation 209 sets out the requirements for electrical installations for electricity supply and wiring for multiple occupancy buildings, subdivisions and easements; specifying labelling and signage requirements.

Regulation 210 sets out require installations that have generation systems to have a notice at all switchboards in the premises warning of the generation system and advising the location of the isolation switches for those generation systems.

Regulation 211 provides that installation, repair or maintenance of electric security fences must comply with AS/NZS 3016. Electric animal containment fences such as those used in farming are exempt.

Regulation 212 provides that a metallic structure or part of a building to be installed, altered, repaired or maintained to support an active conductor of a low voltage overhead service line, must be effectively bonded.

Regulation 213 sets out the requirements for the protection of underground consumer's mains, specifying that a protective device be provided at the point of supply or that the consumers mains be sheathed from the point of supply to the first protective device located within the installation.

Regulation 214 sets out the materials and methods of construction of underground consumers mains, in cases where the underground service lines are protected at the installations metering point.

Regulation 215 sets out the materials and methods of construction of consumers mains within a building or structure, in cases where the underground service lines are protected at the installations metering point.

Regulation 216 sets out the materials and methods for providing the mechanical cover referred to in regulation 214.

Regulation 217 sets out the minimum depths for High Voltage underground lines and underground lines on public land and on private land not owned or leased by the owner of the line.

Regulation 218 sets out the requirements for recording the route of underground lines, including a requirement to accurately record (within a margin of error less than 200mm) and display at the main switch (or other approved place) the record/map of the underground lines.

Regulation 219 provides the specifications for mechanical protection for underground cable which is above the ground on public land and easements. Mechanical protection standards are prescribed for the first 2400mm of underground line which is above the ground and for underground cable which is greater 2400 mm in height from any surface accessible to the public. Regulation 219 does not apply to the negative conductors of a railway.

Regulation 220 sets out the construction, reconstruction, installation, alteration, repair and maintenance requirements for private electric lines. It provides that new electrical lines or substantial reconstructions to existing aerial lines in a high bushfire risk area be placed underground.

Regulation 221 allows for emergency substantial restoration of a private electric aerial line in a high bushfire risk area in order to restore power after a line fault, provided that the owner provides a certificate of electrical safety for the restoration and written statement that they will have the line placed underground or disconnected within a 60 day period. Penalties for failure to comply with each part of this regulation are specified.

Regulation 222 provides that poles, towers and other structures on public land supporting aerial lines must be as vertical as possible. They may not be greater than 5 degrees from the perpendicular over a kerb line in or elsewhere more than 10 degrees from the perpendicular.

Regulation 223 prescribes the minimum allowable distances between certain aerial lines and the ground or water as set out in Tables 223.1 and 223.2.

Regulation 224 provides that no aerial line on public land or on an easement on private land (other than low voltage insulated conductors) may be attached to the façade of a building; and in Table 224 specifies building parts and minimum allowable distances to these parts, for low voltage insulated conductors.

Regulation 225 specifies the minimum allowable distances between aerial lines and buildings, for aerial lines carrying alternating current and direct current to parts of buildings or structures in Tables 225.1 and 225.2 respectively, and sets out exceptions to this regulation.

Regulation 226 sets out the requirements for minimum distance between aerial lines carrying alternating current and parts of small gauge railway systems. Minimum allowable distances are set out in Table 226.

Regulation 227 sets out the requirements for minimum distance between aerial lines carrying alternating current and parts of small gauge tramway systems. Minimum allowable distances are set out in Table 227.

Regulation 228 specifies the requirements for minimum distances between aerial lines which are part of a high voltage electrical installation or the supply network of a small gauge railway or tramway system and other aerial lines in Table 228; and sets out the requirements for the voltage of higher and lower circuits of aerial lines and placement of d.c. traction conductors.

Regulation 229 sets out the requirements for pole mounted substations.

Regulation 230 provides that aerial lines within one kilometre of an airport or airfield must be marked to indicate their position and direction as per Australian Standards for Air Navigation (AS 3891.1 and AS 3891.2).

Division 2—Testing of electrical installation work

Regulation 231 provides the testing procedure to ensure that an electrical installation complies with the requirements of Division 1. The installation must be tested by a licensed electrician or licensed electrical installer after it is completed and before inspection or certification.

Division 3—Electricity suppliers

Regulation 232 provides that no protective equipment may be installed between the point of supply and any main switches for safety services at the direction of an electricity supplier; and sets out the penalty to the electricity supplier should this occur.

Regulations 233 to 237 set out requirements for electricity suppliers regarding earthing and electrical protection equipment for service lines and electricity supplies provided from their substations up to the protective equipment of the installations they supply; and specifies suitable methods of installation of the protective equipment and standards of material. The penalties to the electrical supplier for failure to comply are also specified.

Division 4—Inspection of electrical installation work

Regulation 238 defines 'prescribed electrical installation work' (s.45 of the Act).

Regulation 239 requires that prescribed installation work must be inspected by an LEI within 8 business days of the completion of that work. It also prohibits an inspector from inspecting work until the inspector has a certificate describing the work which is signed by the person who carried out the work.

Regulation 240 specifies that details required by the certificate of electrical safety form are to be included on certificates of inspection.

Regulation 241 sets out the requirement for details on certificates of compliance to be accurate and the certificates filled out legibly; and details the penalty for not meeting this requirement.

Regulation 242 sets out the obligations of a licensed electrical inspector. The inspector must attend the electrical installation site and use inspection and testing methods which accord with the PR (including the Australian/New Zealand Wiring Rules) before issuing a certificate of inspection. The inspector is required to indicate on the certificate of inspection that the installation work appears to be unsafe to use if he is aware, or would be reasonably expected to be, aware of this. Penalties are specified for each requirement.

Regulation 243 provides that notification of completion of the Certificate of Inspection must be electronically submitted to ESV by the licensed electrical inspector within 4 business days after the inspection, or a penalty applies. ESV will provide an approved format for notification.

Regulation 244 requires an LEI to retain a copy of any paper certificates of inspection for 3 years after the date of issue.

Regulation 245 prohibits an LEI from inspecting their own work, or work that they are responsible for.

Regulation 246 provides that the inspector must not have been involved in the design of the installation work being inspected.

Regulation 247 prohibits an REC from allowing an inspector related through employment to the person/s responsible for the work being inspected from inspecting their work. Penalties are specified for each requirement.

Regulation 248 provides that if the electrical work fails to comply with the Act or these Regulations, the electrical inspector must advise the electrical contractor or installation worker responsible for carrying out the work within 2 business days. Penalties are specified within the regulation.

Regulation 249 requires the LEI to note defects on the certificate of inspection. The 'customer's copy' of the certificate of inspection is not required to reflect defects in the work which are rectified at the time of the inspection. Penalties are specified within the regulation.

Regulation 250 sets out the procedure for ESV to notify the electrical contractor/electrical installation worker responsible for carrying out the electrical installation work, of the defects in the work. They must then provide a copy of the notice of defects to the person for whom the work was carried out within 4 business days, or face a penalty (specified within the regulation).

Regulation 251 specifies that details required by the certificate of electrical safety form are to be included on certificates of compliance. If the work has increased the maximum demand of the installation then the 'maximum demand' and 'consumer's mains capacity' sections of the certificate also requires completion.

Regulation 252 sets out the requirement for details on certificates of compliance to be accurate and the certificates filled out legibly; and detail the penalty for not meeting this requirement.

Regulation 253 provides that notification of completion of the Certificate of Compliance must be electronically submitted to ESV by the person responsible for the electrical installation work within 2 business days, or a penalty applies. ESV will provide an approved format for notification.

Regulation 254 requires the responsible person to retain a copy of any paper certificates of inspection for 3 years after the date of issue.

Regulation 255 prescribes the cost for the certificate of electrical safety forms. The fees contained in regulation 255 will take the place of the fees in section 45B (12) of *the Act.*

Division 5—Reporting and records

Regulation 256 specifies the procedure for reporting serious electrical incidents relating to an electrical installation or of any person receiving an electric shock or making accidental contact with an electrical installation to ESV.

Regulation 257 sets out the fire control authorities requirements for reporting relevant incidents to Energy Safe Victoria.

Regulation 258 sets out the electricity supplier requirements for keeping records of the connection date of electrical installations to the electricity supply, copies of certificates of inspection and penalty for non-compliance.

Part 3 — Electrical Safety Duties: Regulations 301 – 321

Division 1—Duties of owners and operators of high voltage electrical installations, complex electrical installations and supply networks of small gauge railways.

Regulation 301 sets out the duties of owners and operators of high voltage electrical installations, in relation to the operation and maintenance of the installation.

Regulation 302 sets out the duties of owners and operators of a complex electrical installation, in relation to the operation and maintenance of the complex electrical installation.

Regulation 303 sets out the duties of owners and operators of a small gauge railway, in relation to the operation and maintenance of the supply network of the small gauge railway.

Division 2—Duties of the public

Regulation 304 provides the conditions under which a person may be exempt from regulations 305-321

Regulation 305 provides that a person should not attempt to hit an electrical installation, or undertake an activity which may put them at risk of hitting an electrical installation whilst engaged in a sporting activity, and sets out the penalty for doing so.

Regulation 306 provides that airborne objects such as aircraft, gliders, hot air balloons, parachutes, model aircraft or kites should be flown, launched or landed near an above ground electrical installation. Exception is made for emergency landings.

Regulation 307 provides that objects entangled or resting on electrical installations should not be removed unless to prevent injury or property damage, and sets out the penalty for interfering with a relevant installation.

Regulation 308 provides that a person should not blast, light on fire or cause an explosion to electrical installations, and sets out the penalty for doing so.

Regulation 309 provides that a person must not place or allow to remain any corrosive, heavy or deleterious material that damages or is likely to damage a relevant installation above or in the vicinity of a relevant installation (the existence and location of which should reasonably been known to the person).

Regulation 310 sets out the requirements for excavating on private land where there are underground lines, and specifies the penalty for doing so.

Regulation 311 sets out the requirements for excavating on public land and within easements where there are underground lines, and specifies the penalty for doing so.

Regulation 312 prohibits persons from placing material on public land below a low voltage aerial line if it would alter the level of the ground. It also prohibits placing material below a high voltage aerial line, or below the aerial line of a small gauge railway system if the placing of the material would reduce the distance between the ground and the line to less than the minimum distance specified in regulation 223. It further prohibits the placing of material next to a relevant installation on public land if the placing of the material would reduce the distance between the ground and the relevant installation.

Regulation 313 provides that no buildings, structures, scaffolding or posts (or parts thereof) may be constructed or maintained if they are closer to aerial lines of relevant installations than is specified in Table 313. Penalty units apply for doing so.

Regulation 314 sets out the minimum distance a flammable material may be placed from a wall or fence of a substation or switch yard, that no flammable material may be placed below an aerial line, specified in Table 314 the minimum distances from an aerial line for flammable materials and specifies the penalty for non-compliance with this regulation.

Regulation 315 provides that vehicles, plants, machinery or their parts should not be closer to aerial lines than is specified in Table 315, and sets out the penalty for doing so. Persons transporting a load are excepted.

Regulation 316 provides that transported loads should be no closer to aerial lines than is specified in Table 439, and sets out the penalty for doing so.

Regulation 317 provides that aerial lines may not be closer to another aerial line than the distance specified in Table 317.1, and sets out the penalty for erecting, maintaining or leaving in place an aerial line within the minimum distance.

Regulation 318 provides that people should be no closer to an aerial line than is specified Table 318, setting out the penalty for failure to comply with this; and details a list of people to whom this regulation does not apply, which includes a licensed electrician, a person engaged in tree-clearing work who has satisfactorily completed a training course in tree clearing approved by ESV, and a person carrying out electrical installation work on an aerial line who has a contract of training and the written permission of the line's owner or operator, a telecommunications worker who has satisfactorily completed a training course in power line awareness approved by ESV, a person employed by a major electricity company to carry out work on an aerial line owned by the major electricity company.

Regulation 319 provides that only people who have satisfactorily completed an ESV approved tree clearing certificate course, may prune or clear any tree part which will fall within 2 metres of a low voltage electrical installation on public land, or within the distances specified in Table 319 of a high voltage electrical installation or aerial line of a small gauge railway or tramway system. A penalty applies for non-compliance with this regulation.

Regulation 320 prohibits a person from attaching aerial lines or cabling systems to electrical installations on public land or causing damage or interfering with electrical installations or their entrances or defacing electrical safety signs.

Regulation 321 applies to a switchboard or substation, switchroom or switchyard of an electrical installation, and provides that no materials may obstruct access to these areas nor obstruct airflow through an air vent in the walls of these areas. A penalty applies for doing so.

Division 5 Part 4—Exemptions and exclusions

Regulation 401 sets out the requirements for an application for exemption for electrical work from the Regulations, and the accompanying application fee. ESV may approve an exemption and set other conditions as appropriate, and have the right to revoke an exemption. If an exemption is granted, any new conditions set by ESV must be observed, or a penalty applies.

Part 5 — Infringement Offences

Regulation 501 prescribes infringement notices for the purposes of Section 140A of the Act.

Part 6 — Related amendments

With regard to amendments to related regulations, provides that the Regulations referred to in the heading to an item in Schedule 3 are amended as set out in that item.

Schedule 1

Sets out the Regulations which are to be revoked.

Schedule 2

Sets out the classification of roads for the purposes of Table 223.1.

Schedule 3

Sets out the amendments to related regulations.

APPENDIX C

ASSUMPTIONS

1. The discount rate used in this RIS is 3.5 per cent. This is the rate published in the *Victorian Guide to Regulation* (Section C.3, p. C-9)

2. The calculation of 'administrative costs' is based on the methodology contained in the *Victorian Guide to Regulation* in relation to valuing staff time (Section C.2.1, p, C-5).]

3. For the purpose of calculating government administrative costs, the following approach was taken:

    - The average salary level for ESV is $84,000. This was grossed-up to allow for on-costs and overheads. The on-cost factors were obtained from the *Victorian Guide to Regulation* in relation to valuing staff time (Section C.2.1, p, C-5), and were: on-cost multiplier (1.165) and the overhead cost multiplier (1.5), providing a gross-up factor of 1.75 (i.e. 1.165 x 1.5). Accordingly, the average grossed-up salary is $147,000.

    - Average hours worked per annum was based on the methodology contained in the *Victorian Guide to Regulation* (see p. C-5) in relation to valuing staff time, and estimated at 1,804 hours per annum (i.e. 44 weeks worked multiplied by 41 hours per week).

    - Annual grossed-up salaries were divided by the number of estimated hours worked to obtain a notional hourly rate and this was divided by 60 to obtain a salary rate per minute.

APPENDIX D

STATEMENT OF NO MATERIAL IMPACT

Administrative Burden Statement

In accordance with the *Victorian Guide to Regulation − Measurement of Changes in Administrative Burden* issued by the Treasurer in April 2007, it has been determined that the regulatory costs imposed by the Electricity Safety (Installations) Regulations 2009 (the Proposed Regulations, PR) will not lead to a material change in the administrative burden on business or not-for-profit organisations in Victoria.

This assessment is based on calculations made using the Victorian Standard Cost Model, which estimates the increase of administrative costs under the Proposed Regulation on business to be in the order of $550 per annum. These costs relate to the requirement to seek a written undertaking when substantially reconstructing a private aerial line. The additional administrative cost is considerably less than the figure of $250,000 per annum advised by the Victorian Competition and Efficiency Commission as being the indicative threshold for materiality.

APPENDIX E

COMPETITION TEST

The 'competition test' is used to assess the PR against any possible restrictions on competition. The test asks whether the PR:

- allows only one participant to supply a product or service;
- requires producers to sell to a single participant;
- limits the number of producers of goods and services to less than four;
- limits the output of an industry or individual producers;
- discourages entry by new persons into an occupation or prompts exit by existing providers;
- imposes restrictions on firms entering or exiting a market;
- introduces controls that reduce the number of participants in a market;
- affects the ability of businesses to innovate, adopt new technology, or respond to the changing demands of consumers;
- imposes higher costs on a particular class or type of products or services;
- locks consumers into particular service providers, or makes it more difficult for them to move between service providers; and/or
- imposes restrictions that reduce range or price or service quality options that are available in the marketplace.

APPENDIX F

MULTI-CRITERIA ANALYSIS

Multi-criteria Analysis (MCA) is described in part 5-18 of the Victorian Guide to Regulation incorporating: Guidelines made under the *Subordinate Legislation Act 1994.* MCA is useful where it is not possible to quantify and assign monetary values to the impacts of a proposed measure (e.g. measures that have significant qualitative, indirect or social impacts).

MCA requires judgements about how proposals will contribute to a series of criteria that reflect the benefits and costs associated with the proposals. A qualitative score is assigned, depending on the impact of the proposal on each of the criteria weightings that may be assigned to each criterion, reflecting its relative importance in the policy decision. An overall score is derived by multiplying the score assigned to each measure by its weighting and then summing the result. If a number of options are being compared, then the option with the highest score represents the preferred approach.

APPENDIX G

ADMINISTRATIVE REQUIREMENTS: COMPARISON OF CR WITH PR

CR	PR	Description	Change
401 (inc. clause 1.9.4.3 WR)	204(6)	Part 1 Solution	Documentation must be retained for 3 years by the person responsible for carrying out the installation work. As the documentation is already required under the WR the additional burden relates only to the retention and storage of documents.
N/A	221	Emergency restoration of private electric aerial lines in high bushfire risk areas	The person responsible for the restoration work must provide ESV (within 5 days of completion work) a copy of the written undertaking provided by the owner of the line, and the Certificate of Electricity Safety for the restoration work. This is a reduction in burden as there is no need to apply for an exemption under CR 416; regardless of this proposal, the Certificate of Electrical Safety is still required to be forwarded to ESV within 1 month under the requirements of the Act.
411	240	Certificate of Inspection	No change
N/A	242(d)	Safety Statement	Additional tick box on certificate of inspection
413	243	Notification of completion of certificate of inspection	No change
407(3)	244	Licensed electrical inspectors must retain a copy of certificate of inspection	No change
410	251	Certificate of Compliance	No change
412	253	Notification of completion of certificate of compliance	No change

CR	PR	Description	Change
New	254	Responsible person must retain a copy of certificate of compliance	Only applies to paper certificates. Certificate includes carbon copy for responsible person. The additional burden relates only to the retention and storage or the responsible person's carbon copy.
414	256	Reporting of incidents	No change
7(2) and 8(4) Network Assets	257	Reporting of incidents—fire control authorities	No change
415	258	Records to be maintained	No change
416/446	401	Exemptions	No change

APPENDIX H

PROPOSED FEES

Introduction

This Appendix sets out the approach to determining the proposed fees, consistent with the cost recovery guidelines, using a 'bottom up' approach. Fees are proposed for certificates of electrical safety (COES) and exemptions from complying with electrical installations regulations and/or the wiring rules. In accordance with the Victorian Government guidelines, the fees would be set on a full cost recovery basis over the life of the regulations (proposed for ten years).[26]

ESV's electrical installation team investigates incidents relating to non-compliant electrical work and unlicensed electrical work, and administers the COES system. The component of the team's work that relates to non-compliant electrical work is included in the cost recovery basis for the proposed fees for COES.[27]

The ratio between the ESV team's effort spent investigating non-compliant electrical work under the electrical installation regulations, and effort spent by the team in relation to unlicensed work under the licensing regulations, is 80:20. This ratio is based on the list of cases ESV investigates, and data was provided by the ESV legal section. This ratio was used in calculating the proposed fees.

The following types of COES exist:

- Prescribed;
- Non prescribed;
- Periodic;
- Prescribed – electronic; and
- Non prescribed – electronic.

The proposed Regulations also have a provision for an exemption from parts of the regulations (e.g., the handle transitional matters associated wit the new wiring rules.

The electronic certificates were introduced in May 2009 and these now run in conjunction with the existing paper certificates. It is anticipated that over time the proportion of certificates purchased and lodged electronically as a percentage of total certificates will range from 5 per cent in the base year to 20 per cent in the final year of the regulations. This estimate was made by ESV (taking into account experience of previous online lodgement systems) based on industry awareness of this option: as the awareness increases across the industry the uptake is expected to increase over time.

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[26] The cost recovery guidelines, as set by the Department of Treasury and Finance can be found at: http://www.vcec.vic.gov.au/CA256EAF001C7B21/WebObj/CostRecoveryGuidelines-September2007-FinalVersionforWebsite--D07-369004/$File/Cost%20Recovery%20Guidelines%20-%20September%202007%20-%20Final%20Version%20for%20Website%20--%20D07-369004.PDF

[27] The component of the team's work that relates to unlicensed electrical work is included in the cost recovery basis for the proposed fees under the separate set of licensing regulations.

The draft regulations contain the following provision for fees.

Description
255 Authorised amount—certificates of electrical safety For the purposes of section 45B (12) of the Act, the authorised amount is— (a) 2.2 fee units for an electronic certificate of electrical safety form relating to prescribed electrical installation work; or (b) 2.4 fee units for a paper certificate of electrical safety form relating to prescribed electrical installation work; or (c) 55.6 fee units for a periodic certificate of electrical safety form; or (d) $6.50 for any other electronic certificate of electrical safety form; or (e) $7.10 for any other paper certificate of electrical safety form.
401 Exemptions (1) Energy Safe Victoria may, on the application of any person, exempt any electrical work or any person from any of the requirements of these Regulations subject to any conditions specified by Energy Safe Victoria. (2) An application must be in writing and contain details of— (a) the applicant's name, telephone number, and business and postal address; and (b) the exemption requested; and (c) the reasons for the exemption. (3) An application referred to in subregulation (2) must be accompanied by— (a) any relevant technical information, including details showing that the granting of an exemption will not reduce the level of safety from physical injury, fire and electric shock from the level that would have been provided under these regulations; and (b) a written agreement to the proposed exemption signed by the owner, occupier or controlling body of the land on which the work is to be carried out; and (c) the application fee. (4) The prescribed fee for an application for an exemption under this regulation is 5.99 fee units.

Extensive historical records are available for prescribed, non prescribed and periodic certificates. Data are less precise for the number of exemptions; however expert advice from the relevant area of ESV considers that 100 per annum is a reasonable estimate. In contrast, the electronic certificates commenced in May 2009 and as such data is only available from this time. The historical transaction levels are shown below. These form the basis for determining the base level of transaction for the base year in the calculation of the fees. The base numbers have been rounded in order to been conservative and to avoid 'spurious accuracy' given the imprecise nature of forecasts.

Table H1: Base Level Certificates of Electrical Safety Transactions, 2005 - 2008

Type	2005	2006	2007	2008	Base[1]
Prescribed	83,000	84,534	85,630	96,223	**96,000**
Non-Prescribed	482,427	502,447	521,495	522,433	**522,000**
Periodic	922	877	779	833	850
Exemptions	Approx 100	Approx 100	Approx 100	Approx 100	100
Total	566,449	587,958	608,004	619,549	618,950

Source: ESV Certificate database
Note: It is assumed in Table H3 below that the 5% of prescribed and non-prescribed COES are lodged electronically.

The transactions above show the number of transactions processed in the base year. Each of the transactions will take varying levels of effort, time and resources to complete. To assist in determining the proposed fees under the cost recovery guidelines, the forecast base line transactions above, were converted into 'units' of transactions. One unit represents the effort (time and support) required by ESV to complete the work associated with one non prescribed electronic COES. The time, effort and support for all other items, are determined relative to the base of this standard work unit. These work units were determined by a series of interviews with ESV staff responsible for administering these areas. For example, based on staff interviews ESV has assessed that prescribed paperless transactions use approximately four times the human resources of non-prescribed paperless certificates.

The results of these work unit calculations relative to the non prescribed electronic (paperless) COES are shown below.

H2: Time taken to administer certificates and exemptions

Type	Work Unit
Prescribed	4.44
Non-Prescribed	1.11
Prescribed – Electronic	4.00
Non-Prescribed – Electronic	1.00
Periodic	100.00
Exemptions	10.00

Note: Table H1 above does not include a split between electronic and paper certificates because this option only commenced from May 2009 and hence historical data are not available.

Based on the base transactions per year and the allocations in the preceding table, the number of unit transactions completed in the base year is as follows (it is assumed the 5 per cent of prescribed and non-prescribed COES will be lodged electronically. That is, the number of transactions with respect to prescribed and non-prescribed COES in Table H1 has been split on a 95 per cent/5 per cent basis below).

H3: Number of Unit Transactions Completed in Base Year

Type	Base
Prescribed	404,928
Non-Prescribed	550,449
Prescribed – Electronic	19,200
Non-Prescribed – Electronic	26,100
Periodic	85,000
Exemptions	1,000
Total	1,086,677

The work steps in the COES process are as follows:

1. Printing COES
    a. All paper certificates are required to be printed. This is done under contract to ESV. Non prescribed and periodic certificates are printed in triplicate, whilst prescribed certificates are printed with the original and four copies
    b. The COES printing contract is often for a period of 6 to 12 Months in advance, with the printing actually occurring on a monthly basis.
2. Ordering COES
    a. An Agent or branch will place an order via the IVR system or over the internet
    b. Daily, the COES team will run the 'pick list' to arrange the orders

    c. Electronic certificates are purchased online as required
3. Sending out COES
    a. The printer transports the printed COES to ESV at ESV's cost.
    b. The COES staff then sort and package the COES into the correct quantities to be sent to the branches by couriers. This process includes
        i. Creating the list
        ii. Allocating orders, creating labels and posting orders
        iii. Assembling and weighing each consignment
        iv. Allocating each order and printing a letter for the branch
        v. Typing up the TNT delivery labels
        vi. Attaching the labels and finish packing of consignments
        vii. Dispatching
4. Lodging COES
    a. Certificates are lodged via the IVR or internet. Paper copies are also sent to ESV.
    b. All COES are scanned by ESV staff and the originals shredded
5. Arranging COES for Audit
    a. IT staff randomly select 10% of all non prescribed, prescribed and periodic certificates for audit by the audit inspection companies (outsourced). The 3 inspection companies are sent an electronic copy of the scanned certificates to audit
    b. All prescribed certificates are inspected at the time the works are completed. This is arranged by and at the cost of the responsible person performing the work
6. Receiving the COES back from Audit
    a. On completion of the audit the results are sent back to ESV, and the file up loaded electronically.
    b. Where non-compliance issues arose, the inspection company contacts the responsible person directly to rectify the non compliant electrical work, and following rectification they will purchase and lodge another certificate.
7. Resolving COES Issues
    a. Where issues arise in the process these are required to be identified and resolved. This will generally occur by the COES Manager.
8. Managing the Agent Contract
    a. All Agent contracts are for 3 years and have clear terms and conditions.
9. Forecasting and analysing COES usage
    a. The COES system allows us to indentify where and what type of electrical work is occurring. This will be expanded into a forecasting system linked to building and electrical work around Victoria.

The following table shows which of the COES steps are required for paper and electronic certificates.

H4: Paper and Electronic Certificates Comparison

Activity	Paper	Electronic
Ordering COES	Yes	Not Required
Printing COES	Yes	Not Required
Sending COES Out	Yes	Not Required
Lodging COES	Yes	Yes
Arranging COES for Audit	Yes	Yes
Conducting the COES Audit	Yes	Yes
Receiving COES back from Audit	Yes	Yes
Resolving COES issues	Yes	Yes
Managing the Agent Contract	Yes	Not Required
Forecasting and Analysing COES Usage	Yes	Yes

The approximate net savings for ESV from the use of the electronic certificate system are shown in the following table:

H5: Net Savings from an Electronic Certificate System

Category of cost	Savings	Additional costs	Net savings
Printing	380,000		
Couriers	50,000		
Other	150,000		
Agent Fees	246,000		
SMS Costs		40,000	
Support costs		50,000	
Total	**826,000**	**90,000**	**736,000**

If ESV used 100 per cent paper certificates, the cost would be as follows:

Base Cost Recovery	$7.0M	Assumes dual paper and electronic certificates
E –COES savings	$0.7M	E – COES only
Base Cost Recovery for E - COES	$6.3M	

The cost difference between a paper certificate and electronic certificate is 90 per cent of an equivalent paper certificate (or alternatively a paper certificate is an increase of 11% on an electronic certificate) – accordingly, the ratio is calculated to be 1:1.11.

Salaries and On-costs

The following direct costs apply to the electrical investigations and COES function:

- 100% of COES staff salaries (three staff: one ESV Band 3; one ESV Band 5; one ESV Band 15);
- 100% of Audit staff (two ESV Band 12 staff);
- 20% of service centre staff
- 80% of the prosecutions solicitor based on time spent on unlicensed prosecutions
- 80% of electrical staff representing the time spent on investigating non compliant electrical work (11 staff, including prosecution solicitor above: one ESV Band 10; five ESV Band 11; one ESV Band 12; two ESV band 13; one ESV Band 14, one ESV Band 15).[28]

COES and audit staff are fully allocated to either administering the certificate system or performing audits relating to the certificate system. No precise data exist in relation to service centre allocation of time; however, based on discussion with the Service Centre area an estimate of 20 per cent was determined (this was split between five different service areas of which electrical installation queries was one). The allocation with respect to preparing cases for prosecution is based on ESV's prosecution list. While the allocation for COES and audit staff is known, there was an element of judgment with respect to the other allocations.

It is assumed for the period of the next ten years that

- the current salary bands will remain the average bands;
- all staff will accrue leave consistent with the ESV Industrial Agreement;
- superannuation will be paid as per the ESV Industrial Agreement; and
- oncosts relating to payroll tax and work cover will remain at current levels.

Printing – COES

All paper-based COES are required to be printed in at least triplicate.

Couriers

The transport of COES from the printers to ESV and then to the branches requires the use of couriers.

Legal Fees

[28] Energy Safe Victoria Agreement 2006 (Agreement: AG847858 PR970812), see pages 19-20 for pay scales: http://www.asu.asn.au/data_man/utilities/agreements-awards/0-listnationalawardsagreement.pdf

Approximately 80 per cent of ESV's legal fees relate to prosecuting non compliant electrical work.

Compliance Audit Fees

Just over 10 per cent of all non prescribed electrical work is inspected each year. This inspection work is conducted by external inspection companies. ESV engages inspection companies via tender processes.

Agent Administration Fees

Paper COES are sold on consignment by Agents and their branches on behalf of ESV. The Agents receive a fee directly from ESV for providing this service.

Motor Vehicles

There are direct costs for motor vehicles for staff involved directly with investigating non compliant electrical work and also in the administration of the COES system.

The motor vehicles costs were determined by working out the total fleet cost for motor vehicles and dividing them by the number of cars in the fleet. This was then multiplied by the pro rata amount for those staff that have been allocated a motor vehicle in the electricity investigations area. The calculation is as follows

- Total motor vehicle fleet costs for ESV in 2008-09;
- The number of fleet vehicles was 49;
- The average cost per vehicle;
- The number of vehicles allocated to electrical investigators is 9;
- The electrical investigators staff spend 80% of their time investigating incidents relating to non compliant electrical work; and
- The COES Manager spends 100% of their time on COES work.

H6: Motor Vehicle Allocation

Type	No. of Vehicles	Pro Rata
Investigators	9	80%
Auditors	2	100%
COES	1	100%
Total	12	

Source: ESV Motor Vehicle Fleet Register

Notes on methodology

- Salaries are based on actual current bandings for staff with leave an oncosts as per the ESV Industrial agreement
- It is assumed that this reporting structure will be in place for the life of the regulations and they will average the same band over that period

- Motor vehicle expenses relate to the pro-rata costs of electrical inspectors in the field who investigate non compliant electrical work and COES
- Corporate overheads were allocated on the following basis:
    - In the 1st instance direct costs are allocated directly to the electrical installations function
    - Secondly, the consumption of other costs by the electrical installations function is then allocated on a pro rata basis (at this stage corporate is still treated as a separate area)
    - Thirdly, all income and costs allocated to corporate and then allocated on a pro rata basis to each of the output areas, electrical installations and COES being one of these output areas.
- The deemed functional areas of ESV are
    - Functional Area = Corporate
        - Director
        - Corporate Services
        - Legal
    - Output Functional Areas
        - Licensing
        - Equipment Approvals
        - Equipment Efficiency
        - COES
        - ***Electrical Installations***
        - Gas Type A Installations
        - Gas Type B Installations
        - Gas Complex Installations
        - Electrolysis
        - Pipelines
        - Infrastructure Gas Safety
        - Infrastructure Electricity Safety
        - Infrastructure Electricity Risk and Audit

Costs were applied on the following basis.

H7: Basis for Allocation of Overheads

Salaries	Total salaries across ESV prorated on an **EFT basis**
Salaries - Oncosts	Total oncosts across ESV prorated on an **EFT basis**
Advertising	Total advertising across ESV prorated to the three areas which ESV's campaigns are directed to.
Computer Expenses	Total IT across ESV prorated on an **EFT basis slightly adjusted for high IT consumers**
Motor Vehicles	Total Motor vehicles across ESV prorated on a MV allocation basis
Printing & Stationary	Total salaries across ESV prorated on an **EFT basis**
Communications	Total salaries across ESV prorated on an **EFT basis**
Publications & Subscriptions	Total salaries across ESV prorated on an **EFT basis**
Travel	Total salaries across ESV prorated on an **EFT basis**
Conferences & Training	Total salaries across ESV prorated on an **EFT basis**
Depreciation	Total salaries across ESV prorated on an **EFT basis**
Legal Fees	Total salaries across ESV prorated on an **EFT basis**
Technical Fees	Total salaries across ESV prorated on an **EFT basis**
Rent	Total salaries across ESV prorated on an **EFT basis, adjusted slightly based on city, suburban or country location for staff**
Indirect	Total salaries across ESV prorated on an **EFT basis**
Corporate Overhead	Total salaries across ESV prorated on an **EFT basis**

Source: ESV Financial Model

Changes to the cost structure over the ten years

It was assumed that:

- the level of transactions over the ten years of the regulations will be as described above; and
- the allocations will remain as per the current position of the life of the regulation.

Over the life of the regulations the cost structure will increase and assumptions have been made about these changes to cost structures.

Summary of costs

Based on the above assumptions:

- the total cost to be recovered for the electrical installation function in the base year is $6,966,209; and
- the total cost to be recovered in the tenth year of the regulations will be $9,311,969.

Ten-year profile of costs

The regulations have a ten-year focus and therefore the following were projected over the 10 years:

- Costs to be recovered; and
- Estimate of transactions.

Fee units will apply to these fees, to minimise the impact of any changes each year and at the end of regulations (this was not the case in the previous regulations).

It is important that cost recovery applies in each year of the ten year regulations.

Calculation of fees

The proposed fee for each item was determined by examining all the activities associated with processing and administering the certificates and attributing a direct cost to these activities (see steps described on pp. 93-94). Once the direct costs were established, corporate overheads were allocated to these functions. The direct and indirect costs were aggregated based on full cost recovery and a fee work unit of $6.41 was determined. Table H8 below shows these components.

H8: Derivation of fee work unit - $6.41

Line	Description	Amount	Notes
1.a	Salaries	$1,663,911	See 'Salaries and on-costs', p. 95
1.b	Motor vehicles	$251,658	See 'Motor vehicles' on p.97 and Table H.6
1.c	Printing - COES	$380,000	See 'Printing', p. 96
1.d	Legal	$117,600	See 'Legal costs' on p.96 and Table H.7
1.e	Compliance Audits	$2,348,280	See 'audits', p. 97
1.f	Agency	$246,000	Payment to agents who sell COES
A	*Total direct costs of COES system*	$5,007,449	Add 1.a to 1.f
2.a	Indirect costs	$1,126,339	See Table H.7
2.b	Overhead allocation of costs in operating COES system	$832,421	See Table H.7
B	*Total indirect and overhead costs*	$1,958,760	Add 2.a and 2.b
C	*Total operating costs of COES system*	$6,966,209	A + B
3	Total COES sold	618,950	See Table H.1
4	Total COES sold converted to work based units	1,086,677	See Tables H1, H2 and H.3
D	Cost per work based unit (total cost divided by number of work based units	**$6.41**	C ÷ 4

To obtain the fee amount for each certificate, therefore, the number of work based units was multiplied by $6.41. For example an electronic prescribed certificate takes four work based units, which results in a total cost of $25.69 (rounded to $25.70).

Accordingly, the proposed fee in the base year to recover costs is as follows with adjustments based on fee units every year thereafter:

H9: Proposed Fees

Item	Work based units	Proposed Fee	Rounded	Current Fee	% Change
Prescribed	4.44	28.52	28.50	20.00	42.5
Non Prescribed	1.11	7.13	7.10	5.00	42.0
Periodic	100.00	642.37	650.00	500.00	30.0
Prescribed - E	4.00	25.69	25.70	20.00	28.5
Non Prescribed - E	1.00	6.41	6.50	5.00	30.0
Exemptions	10.00	64.24	70.00	70.00	0.0

Notes: Currently there are not separate fees for electronic and paper based certificates. The current regulations commenced in May 1999. Since that time, the CPI index has increased from 122.3 to 167, or an increase of 36.5 per cent.

To achieve a break even position (neutrality) in the tenth year, the combination of changes to fee units and the percentage change to the volume of sales (after taking into consideration any change to the variable cost due to changes in the volume of sale certificates) is forecast to change by 3.44 per cent per year.

APPENDIX I

EXPOSURE DRAFT—PROPOSED ELECTRICITY SAFETY (INSTALLATIONS) REGULATIONS

The following terms are used in the proposed regulations.

complex electrical installation means an electrical installation that—

(a) has an installed generation capacity of equal to or greater than 1000 kVA; or

(b) is an electric line that is on land that is not owned or leased by the owner or operator of the electric line;[29]

major electricity company means—

(a) a distribution company; or

(b) a transmission company—

but does not include a distribution company or a transmission company, or a class of distribution company or transmission company, declared under section 3A[30] not to be a major electricity company;[31]

distribution company has the same meaning as in the **Electricity Industry Act 2000**;[32]

transmission company has the same meaning as in the **Electricity Industry Act 2000**;[33]

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[29] **Energy and Recourses Legislation Amendment Bill 2009** (Clause 4).
[30] Section 5 of the **Electricity Safety Amendment Act 2007**
[31] **Energy and Recourses Legislation Amendment Bill 2009** (Clause 4(a)).
[32] Section 3 of the **Electricity Safety Act 1998**.
[33] Section 4 of the **Electricity Safety Amendment Act 2007**

NOTE: The following terms (defined in section 4 of the **Electricity Safety Act 1998**) also apply to the proposed regulations—

certificate of compliance, certificate of inspection, connect, electric line, electrical equipment, electrical installation*, electrical installation work, electrical installation worker, electrical work, electrical worker, electricity supplier, Energy Safe Victoria, fire control authority, install, point of supply, private electric line, railway, serious electrical incident, supply network; tree; urban area.

* It is proposed that the definition of "electrical installation" will be amended to exclude the supply networks of major electricity companies. (See: Clause 4(b) of the **Energy and Recourses Legislation Amendment Bill 2009**

Electricity Safety (Installations) Regulations

Exposure Draft

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Victoria

Electricity Safety (Installations) Regulations

Exposure Draft

PART 1—PRELIMINARY

101 Objectives

The objectives of these Regulations are to—

(a) prescribe the methods to be followed in carrying out electrical installation work; and

(b) prescribe the quality of materials, fittings and apparatus to be used in connection with electrical installations; and

(c) provide for inspection of prescribed electrical installation work; and

(d) provide for the testing and certification of electrical installation work; and

(e) prescribe fees, penalties and other matters authorised by the **Electricity Safety Act 1998**; and

(f) prescribe standards for the design, construction, operation and maintenance of electrical installations; and

(g) provide for the protection of persons from risk, and property from damage, associated with the generation, transmission, distribution and use of electricity; and

(h) prescribe certain provisions of these Regulations that create offences as provisions in respect of which infringement notices my be served; and

(i) make a related consequential amendment to the Electricity Safety (Infringements) Regulations 2000.

102 Authorising provisions

These Regulations are made under sections 149, 151, 152 and 157 of the **Electricity Safety Act 1998**.

103 Commencement

(1) These Regulations, except regulation 104 and Division 2 of Part 3, come into operation on 1 January 2010.

(2) Regulation 104 and Division 2 of Part 3 come into operation on the day these Regulations are made.

104 Revocation

The Regulations listed in Schedule 1 are **revoked**.

105 Definitions

In these Regulations—

accessories has the same meaning as it has in the Australian/New Zealand Wiring Rules;

active conductor has the same meaning as ***active*** in the Australian/New Zealand Wiring Rules;

aerial line means a conductor placed above the ground or water and in open air;

appendix K means appendix K to the Australian/New Zealand Wiring Rules, as published on 12 November, 2007;

AS 1074 means Australian Standard, "Steel tubes and tubulars for ordinary service", AS 1074, as published or amended from time to time;

AS 2067 means Australian Standard, "Substations and high voltage installations exceeding 1kV a.c.", AS 2067, as published or amended from time to time;

AS 3600 means Australian Standard, "Concrete structures", AS 3600, as published or amended from time to time;

AS 3891.1 means Australian Standard, "Air navigation – cables and their supporting structures – marking and safety requirements – permanent marking of overhead cables and their supporting structures for other than planned low-level flying", AS 3891.1, as published or amended from time to time;

AS 3891.2 means Australian Standard, "Air navigation – cables and their supporting structures – marking and safety requirements – marking of overhead cables for low-level flying operations", AS 3891.2, as published or amended from time to time;

AS 4702 means Australian Standard, "Polymeric cable protection covers", AS 4702, as published or amended from time to time;

AS/NZS 1735.1 means Australian/New Zealand Standard, "Lifts, escalators and moving walks General requirements", AS/NZS 1735.1, as published or amended from time to time;

AS/NZS 1735.18 means Australian/New Zealand Standard, "Lifts, escalators and moving walks Part 18: Passenger lifts for private residence—Automatically controlled", AS/NZS 1735.18, as published or amended from time to time;

AS/NZS 2053 means Australian/New Zealand Standard, "Conduits and fittings for electrical installations", AS/NZS 2053, as published or amended from time to time;

AS/NZS 3003 means the Australian/New Zealand Standard, "Electrical installations - Patient treatment areas of hospitals and medical, dental practices and dialyzing locations", AS/NZS 3003, as published or amended from time to time;

AS/NZS 3016 means Australian/New Zealand Standard, "Electrical installations – electric security fences", AS/NZS 3016, as published or amended from time to time;

AS/NZS 3018 means Australian/New Zealand Standard, "Electrical installations – domestic installations", AS/NZS 3018, as published or amended from time to time;

AS/NZS 4680 means Australian/New Zealand Standard, "Hot-dip galvanized (zinc) coatings on fabricated ferrous articles", AS/NZS 4680, as published or amended from time to time;

AS/NZS 4792 means Australian/New Zealand Standard, "Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process", AS/NZS 4792, as published or amended from time to time;

Australian/New Zealand Wiring Rules means the Australian/New Zealand Standard, Electrical Installations, AS/NZS 3000, published jointly by Standards Australia and Standards New Zealand, as published or amended from time to time;

bare open wire means uninsulated conductors supported by insulators;

competent person has the same meaning as it has in the Australian/New Zealand Wiring Rules;

combined earthing system means an earthing system in which the high voltage and low voltage electrical equipment is earthed to a common terminal bar within a substation;

conductor has the same meaning as it has in the Australian/New Zealand Wiring Rules;

conductor spreader means an insulated rod used to maintain the clearances between the bare open wire conductors of a low voltage private aerial line;

consumer's mains has the same meaning as it has in the Australian/New Zealand Wiring; Rules;

consumer's terminals means the connection devices used for the connection of an electrical installation to an electricity supplier's supply network;

d.c. traction conductor means an overhead tram trolley wire, a train contact wire or a tram or train catenary or traction feeder that operates on direct current but does not include tram and train negative conductors;

distribution network means a supply network (generally at nominal voltage levels of 66 kV or below) that is used to distribute electricity to electrical installations;

domestic electrical installation has the same meaning as "Electrical Installation, domestic" in AS/NZS 3018;

double insulation has the same meaning as it has in the Australian/New Zealand Wiring Rules;

effective supervision, in relation to electrical work, means—

(a) being present at the site of the electrical work to the extent necessary to ensure that the work is being correctly performed and carried out in accordance with the Act and these Regulations; and

(b) being aware of the details of the work being performed and giving detailed instructions and directions with respect to the work;

electrical access authority has the same meaning as ***Access Authority*** in the Blue Book;

electricity generation system means a generation system connected to an electrical installation that is intended to supply electricity, either continuously or occasionally, to all or part of the electrical installation and includes a grid-connected inverter system;

fire pump means a fire hydrant booster pump, a pump for an automatic sprinkler, water spray, deluge or similar fire extinguishing system, and—

(a) includes a pump for fire hose reels if those fire hose reels are the only means of fire protection for a premises;

(b) does not include a pump used to establish and maintain pressure in a fire hydrant or fire extinguishing system provided that any fire hydrant or fire extinguishing system does not rely on that pump for its water supply;

grid-connected inverter system means a system containing an inverter that is capable of being connected in parallel with the supply network of an electricity supplier;

hazardous area has the same meaning as in the Australian/New Zealand Wiring Rules;

hazardous bushfire risk area means an area that—

(a) a fire control authority has assigned a fire hazard rating of "high" under section 80 of the Act; or

(b) is not an urban area (unless a fire control authority) has assigned to that area a fire hazard rating of "low" under section 80 of the Act;

high voltage means a voltage exceeding low voltage;

horizontally constructed means a construction method where the individual conductors of an aerial line are supported by insulators mounted on crossarms;

initial portion, in relation to an underground line, means—

(a) in the case of a low voltage underground line, the first 1000 millimetres;

(b) in the case of a high voltage underground line, the first 2000 millimetres—

measured from the point where the underground line enters the ground;

individual occupier's portion means a portion of a multiple installation that is—

(a) under the control of an individual occupier; or

(b) designed to be under the control of an individual occupier;

installation work responsible person means the person who is responsible for the carrying out of electrical installation work under section 41A of the Act;

interstate electricity supplier means a person who—

(a) engages in the distribution or supply of electricity in Victoria; and

(b) owns or operates a distribution network in Victoria along which electricity supplied from an adjacent State is conveyed; and

(c) is exempted under an Order under section 17 of the **Electricity Industry Act 2000** from the requirement to obtain a licence under that Act in respect of the distribution or supply of electricity;

licensed electrician means an electrical installation worker holding an electrician's licence under Part 3 of the Electricity Safety (Registration and Licensing) Regulations 2010;

licensed electrical inspector means a person holding an inspector's licence under Part 3 of the Electricity Safety (Registration and Licensing) Regulations 2010;

low voltage has the same meaning as it has in the Australian/New Zealand Wiring Rules;

multiple installation has the same meaning as ***electrical installation, multiple*** in the Australian/New Zealand Wiring Rules;

negative conductor means a conductor in a circuit of a railway or small gauge railway that is—

(a) maintained at approximately the same electrical potential as the railway or tramway track; and

(b) insulated from earth;

neutral conductor has the same meaning as ***neutral*** in the Australian/New Zealand Wiring Rules;

other cable system means—

(a) telecommunication and control cables; or

(b) aerial earthed cables;

passenger lift means an electrically controlled lift that is capable of conveying passengers, but does not include—

(a) any lift which passengers may safely exit if the lift stops at any point in its travel; or

(b) a lift that has an alternative source of operation that allows passengers to exit safely if there is a loss of electricity supply to that lift provided that in the event of a loss of electricity supply—

(i) if open, the lift doors automatically close; and

(ii) the lift descends to the level of the building that contains the building's exit; and

(iii) the lift doors open upon reaching the level containing the building's exit; and

(iv) the lift remains at the level containing the building's exit with its doors open until the electricity supply to the lift is restored; or

(c) a lift installed in a single private residence that is installed in accordance with AS/NZS 1735.18;

patient area has the same meaning as in AS/NZS 3003;

part 1 solution means a design and installation method adopted under regulation 204;

pole line means an aerial line connected by two or more poles;

private aerial line means a private electric line that is an aerial line and includes any pole that supports an aerial line owned by an electricity supplier, but does not include a pole that is part of the supply network of—

(a) a major electricity company; or

(b) an interstate electricity supplier.

private residence has the same meaning as in AS/NZS 1735.1;

protective equipment means equipment that is intended to automatically isolate the active conductors of a circuit if an electrical fault occurs;

readily accessible has the same meaning as it has in the Australian/New Zealand Wiring Rules;

registered electrical contractor means an electrical contractor registered under Part 2 of the Electricity Safety (Registration and Licensing) Regulations 2010;

reinforced insulation has the same meaning as it has in the Australian/New Zealand Wiring Rules;

related body corporate has the same meaning as in section 9 of the Corporations Act;

relevant installation means—

(a) a low voltage electrical installation operating on public land; or

(b) a high voltage electrical installation; or

(c) a supply network owned or operated by a major electricity company; or

(d) the supply network of a railway; or

(e) the supply network of a small gauge railway;

safety service has the same meaning as it has in the Australian/New Zealand Wiring Rules;

separate earthing system means an earthing system in which the high voltage and low voltage electrical equipment of an electrical installation are connected to two separate and distinct earthing terminal bars within a substation; one for the high voltage electrical equipment and the other for the low voltage electrical equipment;

service protective device means a fuse, circuit breaker or other protective equipment installed for interrupting the supply from an electricity supplier to an electrical installation;

service line means the final span or section of a low voltage aerial line or underground line that is part of the supply network of—

(a) a major electricity company; or

(b) an interstate electricity supplier—

that is connected to a point of supply;

small gauge railway means a system by which vehicles designed to transport passengers or goods are guided by means of a railway track or a tramway track—

(a) with a gauge less than 600 millimetres; or

(b) in an amusement park;

small gauge railway system means a small gauge railway by which vehicles designed to transport passengers or goods are guided by means of a railway track;

small gauge tramway system means a small gauge railway by which vehicles designed to transport passengers or goods are guided by means of a tramway track;

specified incorporated term means—

(a) active conductor;

(b) competent person;

(c) conductor;

(d) consumer's mains;

(e) double insulation;

(f) hazardous area;

(g) low voltage;

(h) multiple installation;

(i) neutral conductor;

(j) readily accessible;

(k) reinforced insulation;

(l) safety service;

(m) substation;

Note

See also regulation 106(e).

stand-alone power system means a power generation system connected to an electrical installation that is not connected to an electricity supplier's supply network;

substantial reconstruction means—

(a) in the case of private aerial lines, replacement of more than 10% of the wiring or replacement of more than 10% of the number of poles in a line supporting wiring; or

(b) in the case of private aerial lines supported by means of a catenary, replacement of more than 10% of the cable supported by a catenary or catenaries or replacement of more than 10% of the number of poles for the catenary or catenaries supporting a cable;

substation has the same meaning as it has in the Australian/New Zealand Wiring Rules;

SWER means single wire earth return;

the Act means the **Electricity Safety Act 1998**;

the Blue Book means the Code of Practice of Electrical Safety For Work On Or Near High Voltage Electrical Apparatus published by Energy Safe Victoria, as published or amended from time to time;

underground line means a conductor placed under the ground and includes any part of the conductor that is at or above the surface of the ground;

urban area has the same meaning as it has in the Act for the purposes of Part 8 of the Act.

106 Application of the Australian/New Zealand Wiring Rules

The Australian/New Zealand Wiring Rules are applied, adopted or incorporated under these Regulations with the following modifications—

(a) every reference in the Rules to a regulatory authority is a reference to Energy Safe Victoria;

(b) every reference in the Rules to an electrician is a reference to a licensed electrician;

(c) every reference in the Rules to a licensed electrical contractor is a reference to a registered electrical contractor;

(d) every reference in the Rules to water and gas suppliers includes a reference to telecommunication suppliers;

(e) every term that is defined in the Rules that is also defined in the Act or these Regulations (and that is not a specified incorporated term) has the meaning given to it under the Act or these Regulations.

———————

PART 2—ELECTRICAL INSTALLATION WORK

Division 1—Safety standards for electrical installations

201 Application—Inconsistency between this Division and applied, adopted or incorporated standards

If a provision in any standard referred to in this Division is inconsistent with a provision of this Division, the provision of this Division prevails to the extent of the inconsistency.

202 Wiring methods—General

(1) A person must not install, alter, repair or maintain an electrical installation or a portion of an electrical installation unless the installation or the installed, altered, repaired or maintained portion of the installation complies with—

(a) this Division; and

(b) Part 2 of the Australian/New Zealand Wiring Rules; and

(c) in the case of a high voltage electrical installation, AS 2067 and Appendix K except for the following provisions—

(i) clauses K11.4.2 and K11.5.2; and

(ii) the Note in clause K2.

(2) Subregulation (1) does not apply to a domestic electrical installation.

203 Wiring methods—Domestic electrical installations

A person must not install, alter, repair or maintain a domestic electrical installation or a portion of a domestic electrical installation unless the installation or the installed, altered, repaired or maintained portion of the installation complies with this Division and—

(a) Part 2 of the Australian/New Zealand Wiring Rules; or

(b) AS/NZS 3018.

204 Part 1 solution

(1) This regulation applies if an electrical installation or a portion of an electrical installation (other than a domestic electrical installation or portion of a domestic electrical installation), because of its unusual requirements, application or intended use, cannot meet the requirements of this Division.

(2) A person may adopt a design and installation method (a ***part 1 solution***) that—

(a) satisfies the fundamental safety principles set out in section 1.5 of Part 1 of the Australian/New Zealand Wiring Rules; and

(b) will provide a level of safety from physical injury, fire and electric shock that is at least equivalent to the level that would have been provided under this Division.

(3) A person may only elect to adopt the part 1 solution before they sign the certificate of compliance that relates to the part 1 solution.

(4) A person must obtain written consent from the owner of the electrical installation to depart from the requirements of this Division in relation to the part 1 solution before adopting the part 1 solution.

(5) Before commencing the installation work relating to a part 1 solution, a person must have the design of that part 1 solution verified as complying with Part 1 of the Australian/New Zealand Wiring Rules by an independent competent person who was not involved in the design of the part 1 solution.

(6) On the adoption of a part 1 solution in relation to an electrical installation, the person must—

(a) clearly and permanently mark the main switchboard of the installation where the part 1 solution has been adopted and any other switchboard that is associated with the part 1 solution with the following words—

"**Warning—parts of this installation adopt a part 1 solution under the Wiring Rules**". and

(b) maintain documentation that details—

(i) the nature and extent of the part 1 solution; and

(ii) the electrical installation or portions of the electrical installation where the part 1 solution was used; and

(iii) why the requirements of this Division could not be met; and

(iv) how compliance with subregulation (2)(a) and (2)(b) was achieved; and

(v) the verification required by subregulation (5).

(7) A copy of the documentation referred to in subregulation (6)(b) must—

(a) be given to the owner of the electrical installation; and

(b) be retained by the person responsible for the carrying out of the electrical installation work for a period of 3 years.

(8) To avoid doubt, despite a part 1 solution being adopted for a portion of an electrical installation, all remaining portions of the electrical installation must comply with this Division.

(9) Energy Safe Victoria may require a competent person to certify that the materials, equipment and methods adopted under a part 1 solution are equivalent to the requirements of this Division.

205 Control of electrical installations

(1) The electricity supply to every electrical installation must be controlled on the main switchboard by a main switch or switches that control the whole of the electrical installation.

(2) Despite subregulation (1), the following electrical equipment is not required to be controlled by a main switch—

(a) consumers mains;

(b) equipment owned by an electricity supplier for metering or the control or protection of metered or metering circuits;

(c) a service protective device owned by an electricity supplier;

(d) any ancillary equipment, measuring equipment, and associated wiring that are required to be connected to the supply side of the main switch or switches, provided that the wiring and equipment are confined within or on the switchboard;

(e) equipment, such as voltage sensing equipment, associated with a safety service that is connected on the supply side of a main switch, in accordance with Australian/New Zealand Wiring Rules;

(f) equipment, such as voltage sensing equipment, associated with an alternative supply system that is connected on the supply side of a main switch in accordance with Australian/New Zealand Wiring Rules;

(g) fault-current limiters;

(h) surge diverters installed to protect consumers mains or main switchboards;

(i) an over-current protective device of the kind required by regulation 220(2) that is installed at the origin of a overhead private electric line;

(j) consumer's terminals.

206 Multiple earthed neutral (MEN) system

An electrical installation required to be earthed must have a multiple earthed neutral connection—

(a) at the main switchboard; or

(b) at an earth bar or link within a substation; or

(c) made through an earthing conductor or terminal provided by the electricity supplier.

207 Main earthing conductor

A main earthing conductor must be taken from the main earthing terminal, connection or bar at the main switchboard to—

(a) an earth electrode; or

(b) an earth bar or link within a substation forming part of the electrical installation; or

(c) an earthing conductor or terminal provided by the electricity supplier.

208 Low voltage neutral earthing within substations

The neutral terminal of each low voltage transformer within a substation must be connected to—

(a) in the case of a substation with a combined earthing system, the common earthing terminal bar contained within the substation; or

(b) in the case of a substation with a separate earthing system, the low voltage earthing terminal bar contained within the substation.

209 Multiple occupancy buildings, subdivisions and easements

(1) If—

(a) electricity supplies for lots on a subdivision or a multiple occupancy building are established at a single point; and

(b) the subdivision or multiple occupancy building contains common property or a common area—

the individual wiring supplying a lot or occupancy must be placed on that common property or common area.

(2) If electricity supplies for lots on a subdivision or a multiple occupancy building are established at a single point and the individual wiring associated with a lot or occupancy passes through another lot or occupancy or service ducts in another lot or occupancy , a person carrying out electrical installation work on a lot or occupancy must—

(a) ensure that any sections of wiring passing through the other lot or occupancy or the service ducts in the other lot or occupancy are clearly and permanently identified, by means of marking or attached labels, at intervals not exceeding 2 metres to indicate that the wiring is not controlled from the switchboard of that other lot or occupancy;

(b) ensure that the switchboard of the other lot or occupancy through which the wiring or service ducts pass is clearly and permanently marked with the following words—

"Warning—not all wiring passing through these premises is controlled from this switchboard";

(c) ensure that a sign, durable card or other durable material is fixed to the switchboard of the other lot or occupancy through which the wiring or service ducts pass setting out the location of the wiring or service ducts.

(2) If electricity supplies for land are on land that is not owned or leased by the owner of the electricity supplies, the switchboard of any land through which the wiring passes must—

(a) be clearly and permanently marked with the following words—

"Warning—not all wiring passing through this land or these premises is controlled from this switchboard"; and

(b) show the location of the wiring on a sign, durable card or other durable material.

210 Premises with electricity generation systems

A person who carries out electrical installation work on an electricity generation system must (in the premises where the electricity generation system is installed or connected to) clearly and permanently mark the main switchboard, any fire indicator panels and all switchboards that will be energised by that electricity generation system—

(a) with the following words—

"Warning—this premises contains an electricity generation system"; and

(b) with the location of isolation switches for all electricity generation systems installed or connected to the premises.

211 Electric security fences

Electric fences (not including electric fences intended primarily for the containment of animals) must be installed, altered, repaired or maintained in accordance with AS/NZS 3016.

212 Bonding of support for low voltage overhead service

(1) A metallic structure or part of a building to be installed, altered, repaired or maintained to support an active conductor of a low voltage overhead service line (***metallic support***) must be effectively bonded in accordance with this regulation.

(2) The bonding conductor must have an equivalent current carrying capacity to that of the neutral conductor of the service line and be connected to the neutral conductor of the service line at the location of the metallic support.

(3) The bonding conductor referred to in subregulation (2) must have a resistance no greater that 0·5 ohms measured between the consumer's terminal for the neutral conductor of the service line and the metallic support.

(4) If the bonding conductor is exposed to the weather, the connections of the bonding conductor must be protected against corrosion in accordance with the requirements for the protection of earthing conductors against corrosion as set out in the Australian/New Zealand Wiring Rules.

(5) For the purpose of this regulation a metallic part of a building or structure includes a pin, bolt, eye bolt, hook, strut or raiser bracket.

213 Protection of underground consumer's mains

(1) An electrical installation that is supplied from an underground electric line must have—

(a) protective equipment provided at the point of supply; or

(b) the consumers mains cables sheathed from the point of supply to the first protective device located within the installation.

(2) For the purposes of subregulation (1), an electricity supplier's protective device at the installation's metering point, may be regarded as the first protective device.

214 Construction of underground consumer's mains

(1) If an electricity supplier's underground service lines are protected by protective equipment installed at an electrical installation's metering point, the portion of underground consumers mains that runs from the property boundary to the building or structure housing the metering equipment (the ***relevant portion***) must be buried to a depth of at least 500 millimetres below the surface of the ground.

(2) The relevant portion must be—

(a) comprised of double insulation; or

(b) surrounded by a neutral screen.

(3) The relevant portion must be—

(a) suitable for use underground; and

(b) enclosed in—

(i) a heavy duty non-metallic conduit that complies with AS/NZS 2053; or

(ii) a medium or heavy galvanised steel tube that complies with AS 1074.

(4) In the case of a relevant portion that is a multi-core or neutral screen cable, the relevant portion must be—

(a) enclosed in—

(i) a heavy duty non-metallic conduit that complies with AS/NZS 2053; or

(ii) a medium or heavy galvanised steel tube that complies with AS 1074; or

(b) provided with mechanical cover in accordance with regulation 216.

(5) Subregulations (1) to (4) do not apply to the first 1000 millimetres of consumers mains from the point where the consumers mains enter the ground, if that portion is—

(a) enclosed as required under paragraph (3)(b); or

(b) provided with additional mechanical cover in accordance with regulation 216.

215 Construction of unmetered consumer's mains within a structure housing metering equipment

If an electricity supplier's underground service lines are protected by protective equipment installed at an electrical installation's metering point, any unmetered consumers mains within the building or structure housing the metering equipment must be enclosed in—

(a) a heavy duty non-metallic conduit of a sort described in AS/NZS 2053; or

(b) a medium or heavy galvanised steel tube that complies with AS1074.

216 Mechanical cover of consumers mains

(1) For the purpose of regulation 214(4) and (5), mechanical cover must—

(a) be placed not less than 50 millimetres and not more than 75 millimetres above the consumers mains; and

(b) not be less than 150 millimetres wide; and

(c) overlap the consumers mains by at least 40 millimetres on each side; and

(d) touch or overlap each other so that no spaces are left between the slabs or cover strips; and

(e) be installed with a minimum depth of cover of 500 millimetres from the top of the additional mechanical protection to the surface of the ground; and

(f) consist of one or a combination of the following—

(i) precast concrete slabs having a thickness of not less than 40 millimetres and a classification of not less than grade 20 in accordance with AS 3600;

(ii) polymeric cable cover strip complying with AS 4702.

(2) If mechanical cover is used to protect an underground line, the line must be—

(a) laid on a bed of not less than 50 millimetres of sand or friable soil free of sharp stone; and

(b) covered by not less than 50 millimetres of the same material.

217 Minimum depths of high voltage underground lines and underground lines on public land and on private land not owned or leased by the owner of the line

(1) A high voltage underground line, or any underground line on public land or on private land not owned or leased by the owner of the line must not be closer to the surface of the ground than the relevant minimum depth specified in column 2, 3 or 4 of Table 217.

Note

Section 46 of the Act generally prohibits the construction of electric lines on public land unless an exemption applies. Contact Energy Safe Victoria for further information.

(2) Subregulation (1) does not apply to the initial portion of an underground line if the initial portion—

(a) is protected by a mechanical cover in accordance with regulation 216(1); or

(b) is enclosed in a heavy duty non-metallic conduit that complies with AS/NZS 2053; or

(c) is enclosed in a medium or heavy galvanised steel tube that complies with AS 1074.

(3) Subregulation (1) does not apply to—

(a) negative conductors; or

(b) those portions of underground lines that are above ground.

TABLE 217—Minimum depths for underground lines from the surface of the ground

Column 1	*Column 2*	*Column 3*	*Column 4*
Type of underground line Nominal voltage ("U")	*Directly buried*	*Directly buried and covered with a mechanical cover*	*Buried enclosed in a conduit or pipe*
U <1500V direct current	750 mm	600 mm	500 mm
Alternating current U ≤ 1kV	750 mm	600 mm	500 mm
1kV a.c. or 1500V d.c. < U ≤ 22kV	900 mm	750 mm	750 mm
22kV < U ≤ 66kV	1000 mm	750 mm	750 mm
66kV < U ≤ 220kV	1000 mm	1000 mm	1000 mm

218 Route of underground lines

(1) A person who carries out electrical installation work on an underground electric line must record the route of the underground electric line in a legible and permanent form on a durable material and fix that record at the main switchboard or in a position approved by Energy Safe Victoria the route of that underground electric line.

(2) A person who makes the record must fix the record in accordance with subregulation (1) before the certificate of compliance for the installation work is signed and—

(a) before the electric line is connected to the electricity supply; and

(b) if the electrical circuits or electrical equipment handled in the course of the electrical installation work were not disconnected from the electricity supply, before the electrical installation is first used after it is completed.

(3) The route of the electric line must be recorded as accurately as practicable with a margin of error not exceeding 200 millimetres.

(4) A person who carries out electrical installation work on an underground electric line on public land (other than an electric line forming part of a railway) must, before the line is connected to an electricity supply or within 2 business days after relocating the line, give sufficient information to enable every cable of the line to be located and identified to—

(a) a person or body specified by Energy Safe Victoria as the asset recording service for the area in which the line is located; or

(b) if no such person or body is so specified, the distribution company for that area.

Note

Section 46 of the Act generally prohibits the construction of electric lines on public land unless an exemption applies. Contact Energy Safe Victoria for further information.

219 Mechanical protection of underground lines above the ground on public land and on private land not owned or leased by the owner of the line

(1) Any portion of an underground line on public land or on private land not owned or leased by the owner of the line that is at or above the surface of the ground must be mechanically protected from the point 300 millimetres below where the line exits the ground to a height of 2400 millimetres from any surface accessible to the public.

(2) The mechanical protection must be one of the following—

(a) a cable guard made of mild steel of 2·5 millimetre thickness for a high voltage underground line and 1·6 millimetre thickness for a low voltage underground line

and galvanised in accordance with AS/NZS 4680 and AS/NZS 4792;

(b) a galvanised steel tube that complies with AS 1074.

(3) Any portion of an underground line that is more than 2400 millimetres in height from a surface accessible to the public must be enclosed in a non-metallic heavy duty conduit that complies with AS/NZS 2053 or in metallic piping or casing that is effectively earthed if the portion of the underground line is—

(a) within reach of a person from a window or other accessible part of a building or structure as determined by AS 2067; or

(b) high voltage and is not metallically screened.

(4) This regulation does not apply to the negative conductors of a railway.

Note

Section 46 of the Act generally prohibits the construction of electric lines on public land unless an exemption applies. Contact Energy Safe Victoria for further information.

220 Private electric lines

(1) A private electric line that is to be constructed or a private aerial line that is to be substantially reconstructed in a hazardous bushfire risk area must be placed underground.

(2) A private aerial line must—

(a) if it is horizontally constructed with bare open wire conductors, have a conductor spreader fitted to each span of conductor; and

(b) be protected at its origin with an over-current protective device (other than a fuse link) that operates in all active conductors and can be operated from the ground.

(3) If a private electric line or private aerial line crosses water at a point where the water is navigable, be affixed with a clear and permanent sign warning of the private aerial line erected at the normal high water mark—

(a) at all boat ramps providing access to the water;

(b) at all points where the electric line starts crossing the water; and

(c) at a point that is between 20 and 100 metres before the electric line when approaching the line by water.

221 Emergency restoration of private electric aerial lines in high bushfire risk areas

(1) Despite regulation 220(1), a private aerial line that has been rendered inoperative by a fault may be substantially reconstructed if the installation work responsible person—

(a) obtains a written undertaking from the owner of the private electric line, that the owner will have the private electric line placed underground within 60 days after the date of the undertaking; and

(b) within 5 business days after the completion of the reconstruction work, provide Energy Safe Victoria with a copy of the undertaking referred to in paragraph (a) and the certificate of electrical safety for the reconstruction of the private electric line; and

(c) carries out the reconstruction work in accordance with regulation 220(2) and (3).

(2) The installation work responsible person referred to in subregulation (1) must comply with this regulation.

Penalty: 20 penalty units.

(3) The owner of a private electric line reconstructed under subregulation (1) must have that private electric line—

(a) placed underground; or

(b) disconnected from electricity supply—

within 60 days after the date of the undertaking referred to in subregulation (1)(a).

Penalty: 20 penalty units.

222 Construction and maintenance of poles and towers

Poles, towers and other structures supporting aerial lines must—

(a) be as vertical as is practicable; and

(b) if located on or near a roadside, not lean over the kerb line in the direction of a vehicular carriageway more than 5 degrees from the perpendicular and not lean in any other direction more than 10 degrees from the perpendicular; and

(c) if located elsewhere, not lean more than 10 degrees from the perpendicular in any direction.

223 Minimum distances between aerial lines and the ground or water

(1) A low voltage aerial line on public land or on private land not owned or leased by the owner of the line or a d.c. traction conductor must not, at any time, be closer to—

(a) the ground; or

(b) the surface of any water that is not accessible to boats with masts—

than the relevant minimum distance specified in Column 2, 3 or 4 of Table 223.1 for the location of the aerial line specified in Column 1 of that Table.

(2) A high voltage aerial line specified in Column 1 of Table 223.2 must not, at any time, be closer to—

(a) the ground; or

(b) the surface of any water that is not accessible to boats with masts—

than the relevant minimum distance specified for the types of aerial lines in Column 2, 3 or 4 of Table 223.2 opposite that line.

(3) An aerial line must not, at any time, be closer than 13 500 millimetres to the surface of any water that is accessible to boats with masts.

(3) The minimum distances specified in Column 2, 3 or 4 of Table 223 do not apply to a part of an aerial line that is within a substation.

TABLE 223.1—Minimum distances to the ground or water surface from low voltage aerial lines on public land or within an easement on private land or traction conductors

	Type of aerial line		
Column 1	*Column 2*	*Column 3*	*Column 4*
Location of aerial line	*Bare live conductors*	*Insulated live conductors*	*Direct current traction conductors*
	Minimum distance to ground or surface of water		
Over a 2000 mm wide strip in the centre of each carriageway of a road	5500 mm	5500 mm	5000 mm
Over any other part of a freeway, tollway, primary road or highway as defined in Part A of Schedule 2	5500 mm	5500 mm	5000 mm
Over any other part of a secondary road as defined in Part B of Schedule 2	5500 mm	4900 mm	5000 mm
Over any other part of any other road	5500 mm	4600 mm	5000 mm
Over any part of a driveway	5500 mm	4600 mm	5000 mm
Over other ground traversable by vehicles	5500 mm	4600 mm	5000 mm
At the connection to a building or structure	Not permitted	3000 mm	Not permitted
Over the surface of any water not accessible to boats with masts	4500 mm	4500 mm	4500 mm
Elsewhere	5000 mm	3000 mm	4500 mm

TABLE 223.2—Minimum distances to the ground or water surface from high voltage aerial lines

	Minimum distance		
Column 1	*Column 2*	*Column 3*	*Column 4*
Type of aerial line Nominal voltage ("U")	*Carriageway of roads*	*Ground traversable by vehicles*	*Other ground or the surface of any water not accessible to boats with masts*
Alternating current insulated with earthed screen U > 1kV	5500 mm	5500 mm	4500 mm
Alternating current insulated without an earthed screen U > 1kV	6000 mm	5500 mm	4500 mm
Bare or covered 1kV a.c or 1500V d.c. < U ≤ 33kV	6700 mm	5500 mm	5000 mm
Bare or covered 33kV < U ≤ 132kV	6700 mm	6700 mm	5500 mm
Bare or covered 132kV < U ≤ 275kV	8700 mm	7500 mm	6700 mm
Bare or covered 275kV < U ≤ 330kV	9700 mm	8000 mm	6700 mm
330kV < U ≤ 500kV	11 400 mm	10 700 mm	10 700 mm

224 Aerial lines and the façade of buildings

(1) An aerial line on public land or on private land not owned or leased by the owner of the line, other than a low voltage insulated conductor must not, at any time, be attached to the façade of any building.

(2) A low voltage insulated conductor on public land or on private land not owned or leased by the owner of the line, must not, at any time, be closer to a part of a building or structure specified in

Column 1 of Table 224 than the relevant minimum distance specified in Column 2 of Table 224 opposite that conductor.

(3) Figures 224.1, 224.2 and 224.3 are for illustrative purposes only and are not intended to be a comprehensive depiction of the situations they illustrate.

TABLE 224—Minimum distances to parts of buildings or structures from low voltage insulated conductors supported along the façade of the building or structure

	Column 1 *Low voltage insulated conductor*	*Column 2* *Minimum distance*
A	Vertically from ground	2500 mm
B	Above windows and doors	300 mm
C	Each side of and below windows	500 mm
D	Each side of doors and balconies	1000 mm
E	From metallic parts	50 mm

Figure 420.1

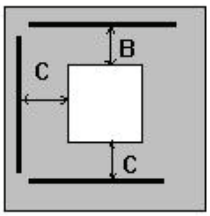


Figure 420.2

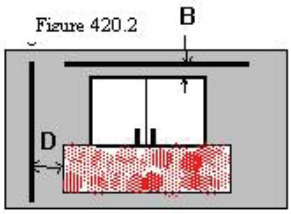
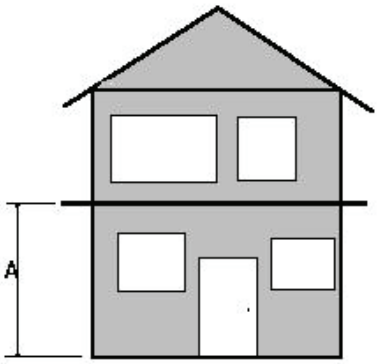


Figure 420.3



225 Minimum distances between aerial lines and buildings or structures

(1) An aerial line carrying alternating current at a voltage set out in Row A of Table 225.1 must not, at any time, be closer to a building or structure or part of a building or structure specified in Column 1 of Table 225.1 than the relevant minimum distance specified for the type of aerial line in Column 2, 3, 4, 5, 6, 7 or 8 of that Table.

(2) An aerial line carrying direct current at a voltage set out in Row A of Table 225.2 must not, at any time, be closer to a building or structure or part of a building or structure specified in Column 1 of Table 225.2 than the relevant minimum distance specified for the type of aerial line in Column 2, 3 or 4 of that Table.

(3) The minimum distances in rows B, C, D and E of Tables 225.1 and 225.2 do not apply to the connection of an aerial line to a pole, tower or substation.

(4) The minimum distances in rows C, D and E of Tables 225.1 and 225.2 do not apply to—

(a) that part of an aerial line close to a building or structure for the purposes of supplying electricity to the building or structure; or

(b) low voltage insulated conductors attached to the façade of any building or structure on public land or on an easement on private land.

(5) Figures 225.1 and 225.2 are for illustrative purposes only and are not intended to be a comprehensive depiction of the situations they illustrate.

TABLE 225.1—Minimum distances to parts of buildings or structures from aerial lines carrying alternating current

	Minimum distance for type of aerial line and nominal voltage ("U")						
Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*	*Column 8*
Alternating current aerial line	*Insulated with earthed screen*	*Insulated without earthed screen*	*Bare or covered*	*Bare*	*Bare*	*Bare*	*Bare*
Row A Voltage	U>1kV		1kV < U ≤ 33kV	33kV < U ≤ 132kV	132kV < U ≤ 275kV	275kV < U ≤ 330kV	330kV < U ≤ 500kV
Row B Vertically above those parts of a building or structure normally accessible to persons	2700 mm	3700 mm	4500 mm	5000 mm	6800 mm	8000 mm	9800 mm
Row C Vertically above those parts of a building or structure not normally accessible to persons but on which a person can stand	100 mm	2700 mm	3700 mm	4500 mm	6000 mm	7000 mm	8000 mm
Row D In any direction, other than vertically above, from those parts of a building or structure normally accessible to persons, or from any part not normally accessible to persons but on which a person can stand	100 mm	1500 mm	2100 mm	3000 mm	4600 mm	5500 mm	6400 mm
Row E In any direction from those parts of a building or structure not normally accessible to persons	100 mm	600 mm	1500 mm	2500 mm	3700 mm	4700 mm	6400 mm

TABLE 225.2—Minimum distances to parts of buildings or structures from aerial lines carrying direct current

Column 1	*Column 2*	*Column 3*	*Column 4*
	Minimum distance for type of aerial line and nominal voltage ("U")		
Row A	U≤ 600V		600V < U≤ 1500V
Direct current aerial line	*Insulated*	*Bare*	*Bare or insulated*
Row B			
Vertically above those parts of a building or structure normally accessible to persons	2700 mm	3700 mm	4500 mm
Row C			
Vertically above those parts of a building or structure not normally accessible to persons but on which a person can stand	100 mm	2700 mm	3700 mm
Row D			
In any direction, other than vertically above, from those parts of a building or structure normally accessible to persons or vertically below as described in row E, or from any part not normally accessible to persons but on which a person can stand	100 mm	1500 mm	2100 mm
Row E			
In any direction, other than vertically below as described in row E, from those parts of a building or structure not normally accessible to persons	100 mm	600 mm	1500 mm

Column 1	*Column 2*	*Column 3*	*Column 4*
Direct current aerial line	*Insulated*	*Bare*	*Bare or insulated*
Row F			
Vertically below those parts of a building or structure erected over a small gauge railway or tramway system	100 mm	300 mm	300 mm

Figure 421.1

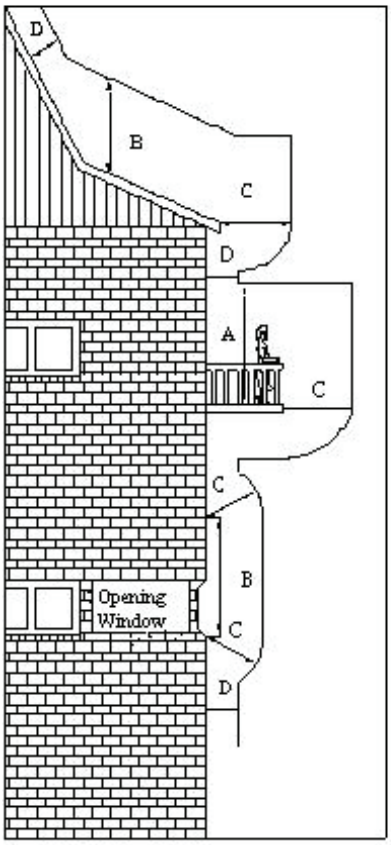
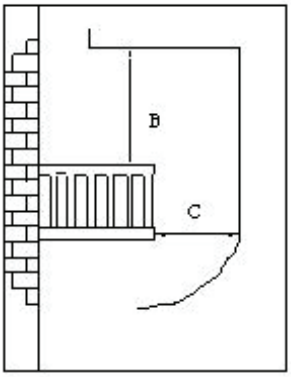


Figure 421.2



226 Minimum distances between aerial lines and parts of small gauge railway systems

(1) A high voltage aerial line carrying alternating current above a direct current catenary wire or supervisory cable for a d.c. traction conductor for a small gauge railway system must not, at any time, be closer than 900 millimetres above a straight line joining the higher of the supporting points for the span of the catenary wire or supervisory cable.

(2) An aerial line carrying alternating current at a voltage set out in Column 1 of Table 226 must not, at any time, be closer to a part of a small gauge railway system specified in Row A of Table 226 than the relevant minimum distance specified for that part in Column 2, 3 or 4 of that Table opposite the corresponding voltage.

TABLE 226—Minimum distances to parts of small gauge railway systems from aerial lines carrying alternating current

	Column 1	*Column 2*	*Column 3*	*Column 4*
		Minimum distance from part of a small gauge railway system		
Row A	Alternating current aerial line Nominal voltage ("U")	Above track	From d.c. traction conductors	From d.c. traction conductor wire/cable supports
Row B	U ≤ 1kV	6700 mm	Not permitted	2700 mm
Row C	1kV < U≤ 22kV	7600 mm	1200 mm	3700 mm
Row D	22kV < U≤ 66kV	7600 mm	1800 mm	4600 mm
Row E	66kV < U≤ 132kV	7900 mm	2100 mm	4600 mm
Row F	132kV < U≤ 275kV	9000 mm	3000 mm	5500 mm
Row G	275kV < U≤ 330kV	9800 mm	4000 mm	6400 mm
Row H	330kV < U≤ 500kV	11 300 mm	5500 mm	7900 mm

227 Minimum distances between aerial lines and parts of small gauge tramway systems

An aerial line carrying alternating current at a voltage set out in Column 1 of Table 227 must not, at any time, be closer to a part of a small gauge tramway system specified in Row A of Table 227 than the relevant minimum distance specified for that part in Column 2, 3 or 4 of that Table opposite the corresponding voltage.

TABLE 227—Minimum distances to parts of small gauge tramway systems from aerial lines carrying alternating current

	Column 1	*Column 2*	*Column 3*	*Column 4*
		Minimum distance from part of a small gauge tramway system		
Row A	Alternating current aerial line Nominal voltage ("U")	Above track	From d.c. traction conductors	From d.c. traction conductor wire/cable supports
Row B	U ≤ 1kV	7000 mm	600 mm	2700 mm
Row C	1kV < U≤ 22kV	8200 mm	1200 mm	3700 mm
Row D	22kV < U≤ 66kV	8200 mm	1800 mm	4600 mm
Row E	66kV < U≤ 132kV	8200 mm	2100 mm	4600 mm
Row F	132kV < U≤ 220kV	9000 mm	3000 mm	5500 mm
Row G	220kV < U≤ 330kV	9800 mm	4000 mm	6400 mm
Row H	330kV < U≤ 500kV	11 300 mm	5500 mm	7900 mm

228 Minimum distances between aerial lines

(1) An aerial line set out in Column 1 or 2 of Table 228 that forms part of—

(a) a high voltage electrical installation; or

(b) the supply network of a small gauge railway—

must not, at any time, be closer to an aerial line specified in the same row as that line than the relevant minimum distance specified in column 3, 4 or 5 of the Table for the location of the aerial line.

(2) The nominal voltage of the lower circuit of an aerial line must not be greater than the nominal voltage of the upper circuit of an aerial line.

(3) A d.c. traction conductor for a small gauge tramway system must not, at any time, cross an electrolysis drainage cable, unless the conductor and the cable are attached to a common pole or support.

TABLE 228—Minimum distances between aerial lines

	Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Row A	*Type and nominal voltage ("U")*		*Minimum distance*		
Row B	Upper circuit	Lower circuit	Between the aerial line spans. Circuits on the same pole line	Between the points where the aerial lines are attached to a common pole or support	Between the aerial line spans. Circuits crossing not on same pole line
Row C	Low voltage alternating current aerial line	d.c. traction conductor U≤ 1500V	1000 mm	1000 mm	1000 mm
Row D	d.c. traction conductor U≤ 1500V	Electrolysis drainage cable	1000 mm	1000 mm	Not permitted
Row E	d.c. traction conductor U≤ 1500V	Other cable system	1000 mm	1000 mm	1000 mm

	Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*
Row F	Alternating current aerial line U > 1kV U ≤ 33kV	Alternating current aerial line U ≤ 33kV	1200 mm	1200 mm	750 mm
Row G	Alternating current aerial line U > 33kV U ≤ 66kV	Alternating current aerial line U ≤ 66kV	1800 mm	1800 mm	1200 mm

229 Minimum distance from the ground for substations

The minimum distance from the ground for any part of the supporting platform and equipment (except conductors) for a pole mounted substation that is mounted on or attached to a pole or a crossarms of a pole is—

(a) if the substation is more than 500 millimetres from the vertical projection of the kerb line (in the direction away from a vehicular carriageway) and that substation is more than 200 millimetres from the surface of the pole, no less than 3600 millimetres from the ground; and

(b) if the substation is more than 500 millimetres from the vertical projection of the kerb line (in the direction away from a vehicular carriageway) and that substation is 200 millimetres or less from the surface of the pole, no less than 2400 millimetres from the ground; and

(c) if the substation is in any other circumstances not covered by paragraph (a) or (b), no less than 4600 millimetres from the ground.

230 Marking of electric lines

If aerial lines are within one kilometre of an airport or airfield, the lines must be marked to indicate their position and direction, in accordance with AS 3891.1 and AS 3891.2.

Division 2—Testing of electrical installation work

231 Testing

(1) For the purposes of section 44(1)(b) of the Act, electrical installation work (other than high voltage installation work) must be tested in accordance with the Australian/New Zealand Wiring Rules to verify that the installation work complies with Division 1 after the work is completed and before certification or inspection of the work under the Act.

(2) For the purposes of section 44(1)(b) of the Act, high voltage electrical installation work must be tested in accordance with AS 2067 and section K14 (excluding clause K14.7) of Appendix K to verify that the installation work complies with Division 1 after the work is completed and before certification or inspection of the work under the Act.

(3) For the purposes of section 44(1)(b) of the Act, high voltage electrical installation work carried out on the earthing systems of substations and high voltage electrical installations must be tested to ensure that—

(a) the resistance to earth is not greater than is required by AS 2067; and

(b) the earthing connections will maintain their conductivity; and

(c) the earth potential rise does not exceed that required by AS 2067.

(4) The testing must be carried out by—

(a) a licensed electrician; or

(b) a person who is licensed to carry out the electrical installation work; or

(c) in the case of the testing set out in subregulation (2) and (3), a competent person.

Division 3—Electricity suppliers

232 Safety services

An electricity supplier must not require a person to install protective equipment between the point of supply and any main switches for safety services.

Penalty: 20 penalty units.

233 Earthing and electrical protection up to protective equipment

An electricity supplier must ensure that earthing and protection systems isolate unsafe electrical conditions up to the protective equipment of the electrical installations they supply.

Penalty: 20 penalty units.

234 Service lines and electricity supplies

An electricity supplier must ensure that the supplier's service lines and low voltage electricity supplies provided from the supplier's substations—

(a) contain a neutral conductor that is—

(i) continuous from any point of supply to the neutral terminal of the substation it is connected to; and

(ii) easily indentified; and

(iii) verified as being a neutral conductor; and

(b) are protected by protective equipment, installed in accordance with regulation 235, that can isolate each of the active conductors of an electrical installation.

Penalty: 20 penalty units.

235 Installation of protective equipment

(1) In the case of a aerial line, protective equipment must be installed—

(a) at, or next to, the point of supply; or

(b) at, or next to, any point where an unmetered consumers mains is attached to the consumer's premises; or

(c) at any pole to which a consumers mains is attached; or

(d) at the electricity supplier's pole to which a service line is connected.

(2) In the case of an underground line, protective equipment must be installed—

(a) at, or next to, the point where the consumers mains is connected to the electricity supplier's supply main; or

(b) at, or within 3000 millimetres of, the point where the consumers mains is connected to the electricity supplier's supply main; or

(c) if an aerial service line has been converted to an underground line, at the point where the aerial service line was connected to the consumer's premises; or

(d) at or next to the electricity supplier's metering equipment located at the consumer's premises, but only if the

unmetered portion of the consumers mains that runs from the property boundary to the building or structure housing the metering equipment is suitable for use underground and—

(i) of a double insulated construction; or

(ii) surrounded by a neutral screen.

(3) In the case of electricity supplies provided from a substation, protective equipment must be installed within the substation.

236 Suppliers must ensure use of double insulation

An electricity supplier must ensure that the conductor insulation of any of its aerial lines that are service lines must be comprised of double insulation or reinforced insulation.

Penalty: 20 penalty units.

237 Supply of electricity to premises

(1) An electricity supplier must not supply electricity to premises (by way of an overhead service line) unless that service line is—

(a) securely attached to the premises and to any pole that supports the service line; and

(b) insulated in accordance with regulation 236; and

(c) is not readily accessible to persons.

Penalty: 20 penalty units.

(2) An electricity supplier must not supply electricity to premises (by way of an overhead service line) unless any metallic structure or part of the building that supports the service line is effectively bonded in accordance with regulation 212.

Penalty: 20 penalty units.

(3) Subregulation (2) does not apply to the replacement of an existing service line unless electrical installation work is being carried out on the premise's consumers mains, consumers terminals or any metallic structure or part of the building that supports the service line.

Division 4—Inspection of electrical installation work

238 Prescribed electrical installation work

(1) For the purposes of section 45 of the Act, ***prescribed electrical installation work*** means work on all or part of any of the following electrical installations if they are ordinarily operated at low voltage or a voltage exceeding low voltage—

(a) consumers mains, main earthing systems, consumers terminals connection devices, any supports for overhead service lines (including any poles) and those parts of main switchboards that are related to the control of installations and the protection against the spread of fire;

(b) if a main switchboard is connected for the first time, circuit protective devices, switchgear, controlgear, circuit breakers and the wiring systems of the main switchboard;

(c) sub-mains, earthing systems and any distribution boards related to the control of individual occupiers' portions of multiple installations;

(d) if a distribution board related to the control of individual occupiers' portion of a multiple installations connected for the first time, circuit protective devices, switchgear, controlgear, circuit breakers and the wiring systems of the distribution board;

(e) high voltage installations, except high voltage electrical equipment that is—

(i) associated with an electric discharge lighting system; or

(ii) associated with X-ray equipment; or

(iii) associated with high frequency equipment; or

(iv) within self contained equipment supplied at low voltage;

(f) wiring systems, switchgear, controlgear and accessories installed to provide control and protection of generation systems (excluding stand-alone power systems with a power rating that is less than 500 volt-amperes);

(g) electric fences used for security purposes but not including electric fences intended primarily for the containment of animals;

(h) electrical equipment installed in a hazardous area and electrical equipment associated with the protection of a hazardous area but not installed within the hazardous area.

(2) For the purposes of section 45 of the Act, ***prescribed electrical installation work*** means work on all or part of any of the following electrical installations operated at any voltage—

(a) fixed electrical equipment installed in a patient area;

(b) circuit protective devices, switchgear, controlgear, wiring systems and accessories installed to provide control and protection of passenger lifts, fire pumps and air handling systems intended to exhaust and control the spread of fire and smoke;

(c) generation systems (excluding stand-alone power systems with a power rating that is less than 500 volt-amperes) supplying electricity to electrical installations that are ordinarily operated at low voltage or a voltage exceeding low voltage;

(d) a part 1 solution installed in an electrical installation.

(3) For the purposes of section 45 of the Act, ***prescribed electrical installation work*** does not include—

(a) the repair or maintenance of a single component part of an electrical installation; or

(b) the replacement of a single component part of an electrical installation by an equivalent component part at the same location.

(4) A single component referred to in subregulation (3) includes any terminating device required to connect that single part of an electrical installation to the electricity supply.

239 Inspection of prescribed electrical installation work

(1) For the purposes of section 45(1) of the Act, prescribed electrical installation work must be inspected by a licensed electrical inspector within 8 business days after the completion of that work.

(2) A licensed electrical inspector must not inspect prescribed electrical installation work unless—

(a) the inspector has a copy of the certificate of compliance for that electrical installation work which is signed by the person who carried out the work; and

(b) the certificate contains a detailed description of all of the prescribed electrical installation work to be inspected.

Penalty: 20 penalty units.

240 Certificates of inspection

For the purposes of section 45(4)(d) of the Act, the certificate of inspection must contain all the details required by the certificate of electrical safety.

241 Details to be accurate and legible—certificate of inspection

A licensed electrical inspector must ensure that the details listed in regulation 240 are complete, accurate and legible on each copy of the certificate of inspection.

Penalty: 20 penalty units.

242 Obligations of licensed electrical inspectors

(1) A licensed electrical inspector must not sign a certificate of inspection unless that inspector—

(a) has attended at the electrical installation address stated on the certificate of compliance; and

(b) has carried out inspection of the electrical installation in accordance with the Australian/New Zealand Wiring Rules and these regulations; and

(c) has carried out testing of the electrical installation in accordance with regulation 231; and

(d) in circumstances where the inspector knows or should be reasonably expected to know that the premises or land related to the electrical installation work being inspected will be electrically unsafe to connect to electricity supply or unsafe to use, has stated on the certificate of inspection that the installation appears to be electrically unsafe.

Penalty: 20 penalty units.

(2) In the case of high voltage installation work, a licensed electrical inspector may comply with subregulation (1)(c) by witnessing a licensed electrician or a competent person carrying out those tests.

243 Notification of completion of certificate of inspection

(1) A licensed electrical inspector who carries out an inspection of prescribed electrical installation work must, in accordance with this regulation, give to Energy Safe Victoria electronic notification of completion of the certificate of inspection within 4 business days after completion of that inspection.

Penalty: 20 penalty units.

(2) The notification must be given in a manner approved by Energy Safe Victoria.

244 Licensed electrical inspectors must retain a copy of certificates of inspection

If a licensed electrical inspector issues a paper certificate of inspection, the inspector must retain a copy of that certificate of inspection for 3 years after the date the inspector signed the certificate.

Penalty: 20 penalty units.

245 Licensed electrical inspectors must not inspect their own work

A licensed electrical inspector inspecting the prescribed electrical installation work must not be the licensed electrical installation worker who carried out the work or the installation work responsible person in relation to that work.

Penalty: 20 penalty units.

246 Licensed electrical inspectors must not inspect work if involved with the design of the work

A licensed electrical inspector inspecting prescribed electrical installation work must not be a person who was involved in the design of that electrical installation work.

Penalty: 20 penalty units.

247 Installation work responsible person must not use an employee to inspect any work they are responsible for

A installation work responsible person must ensure that the licensed electrical inspector inspecting any prescribed electrical installation work that they are responsible for is not a person who is employed by—

(a) the installation work responsible person; or

(b) a related body corporate of the installation work responsible person.

Penalty: 20 penalty units.

248 Notification of defects by inspectors

If prescribed electrical installation work that has been inspected by a licensed electrical inspector does not comply with the Act or these Regulations, the inspector who has inspected the work must notify the installation work responsible

person of the defects relating to the work within 2 business days.

Penalty: 20 penalty units.

249 Inspector must note defects on certificate of inspection

(1) If prescribed electrical installation work that has been inspected by a licensed electrical inspector does not comply with the Act or these Regulations, the inspector who has inspected the work must complete the defects section on the certificate of inspection.

Penalty: 20 penalty units.

(2) Despite subregulation (1), a licensed electrical inspector is not required to record any defects in the work on the customer's copy of the certificate of inspection if the defects in the work are rectified at the time of the inspection.

250 Notification of defects by Energy Safe Victoria

(1) If Energy Safe Victoria is satisfied that electrical installation work does not comply with the Act or these Regulations, Energy Safe Victoria may notify the installation work responsible person or the electrical installation worker who carried out the work of the defects in the work.

(2) For the purposes of subregulation (1), Energy Safe Victoria may have regard to a certificate of inspection or carry out its own inspection of electrical installation work.

(3) An electrical contractor or electrical installation worker who is notified under subregulation (1) must, within 4 business days after receipt of the notice, forward a copy of the notice to the person for whom the work was carried out.

Penalty: 20 penalty units.

251 Certificates of compliance

(1) For the purposes of section 44(3)(c) of the Act, a certificate of compliance must contain all the details required by the certificate of electrical safety.

(2) Despite subregulation (1), detail as to the maximum demand of the installation at the time of completion of the work in amps per phase need only be completed if the work has increased the maximum demand of the installation.

(3) Despite subregulation (1), detail as to the consumers mains capacity of the installation in amps need only be completed if the work has increased the maximum demand of the installation.

252 Details to be accurate and legible—certificate of compliance

A licensed electrical installation worker must ensure that the details required by regulation 251 are complete, accurate and legible on each copy of the certificate of compliance.

Penalty: 20 penalty units.

253 Notification of completion of certificate of compliance

(1) The person who is responsible for the carrying out of electrical installation work must, in accordance with this regulation, give electronic notification of completion of the certificate of compliance (other than a certificate of compliance that is part of a periodic certificate of electrical safety) to Energy Safe Victoria within 2 business days after that completion.

Penalty: 20 penalty units.

(2) The notification must be given in a manner approved by Energy Safe Victoria.

254 Installation work responsible person must retain a copy of certificates of compliance

If a installation work responsible person issues a paper certificate of compliance, the installation work responsible person must retain a copy of that certificate of compliance for 3 years after the date the installation work responsible person signed the certificate.

Penalty: 20 penalty units.

255 Authorised amount—certificates of electrical safety

For the purposes of section 45B (12) of the Act, the authorised amount is—

(a) 2·2 fee units for an electronic certificate of electrical safety form relating to prescribed electrical installation work; or

(b) 2·4 fee units for a paper certificate of electrical safety form relating to prescribed electrical installation work; or

(c) 55·6 fee units for a periodic certificate of electrical safety form; or

(d) $6.50 for any other electronic certificate of electrical safety form; or

(e) $7.10 for any other paper certificate of electrical safety form.

Division 5—Reporting and records

256 Reporting of incidents

(1) If a serious electrical incident occurs, the following persons must, as soon as practicable, report all of the details of the incident within their knowledge to Energy Safe Victoria—

(a) an electrical worker who becomes aware of a serious electrical incident relating to work carried out by that worker;

(b) an operator of a high voltage electrical installation who becomes aware of any serious electrical incident occurring within that electrical installation;

(c) an operator of a complex electrical installation who becomes aware of any serious electrical incident occurring within that complex electrical installation;

(d) an operator of a railway who becomes aware of any serious electrical incident occurring in relation to an electrical installation associated with that railway;

(e) an operator of a small gauge railway who becomes aware of any serious electrical incident occurring in relation to an electrical installation associated with that small gauge railway;

(f) any other installation work responsible person who becomes aware of a serious electrical incident relating to work for which that person is responsible for carrying out.

Penalty: 10 penalty units.

(2) A person referred to in subregulation (1) must, within 20 business days after the incident, send a written report of the incident to Energy Safe Victoria.

Penalty: 10 penalty units.

(3) If an incident occurs involving electricity in which a person has made accidental contact with any electrical installation or received an electric shock as the result of direct or indirect contact with any electrical installation, the following persons must,

within 20 business days after the incident, send a written report to Energy Safe Victoria of all of the details within their knowledge regarding the incident—

(a) an electrical worker who becomes aware of such an incident relating to work carried out by that worker;

(b) an operator of a high voltage electrical installation who becomes aware of such an incident occurring within that electrical installation;

(c) an operator of a complex electrical installation who becomes aware of any serious electrical incident occurring within that complex electrical installation;

(d) an operator of a railway who becomes aware of any serious electrical incident occurring in relation to an electrical installation associated with that railway;

(e) an operator of a small gauge railway who becomes aware of any serious electrical incident occurring in relation to an electrical installation associated with that small gauge railway;

(f) any other installation work responsible person who becomes aware of such an incident relating to work for which that person is responsible for carrying out.

Penalty: 10 penalty units.

(4) Nothing in this regulation applies to a major electricity company.

257 Reporting of incidents—fire control authorities

(1) For the purposes of section 142(3) of the Act, a fire control authority must—

(a) as soon as is practicable report to Energy Safe Victoria by telephone, on a telephone number specified by Energy Safe Victoria, all of the details of the serious electrical incident within its knowledge; and

(b) on a monthly basis, send to Energy Safe Victoria a written report containing all details within their knowledge regarding any fire that they believe to be of an electrical nature that occurred in the previous month; and

(c) on a monthly basis, send to Energy Safe Victoria a written report containing all details within their knowledge regarding any incident in the previous month involving electricity in which a person—

(i) made accidental contact with any live electric line or live electrical equipment; or

(ii) received an electric shock as a result of direct or indirect contact with any supply network or electrical installation; and

(d) as soon as is practicable, send to Energy Safe Victoria the results of any investigation into any fire or incident involving, or suspected to involve, electricity.

258 Records to be maintained

An electricity supplier that has received a certificate of inspection referred to in section 45(2) of the Act must retain a copy of the certificate, together with a record of the date the supplier connected the installation to the electricity supply, for 3 years after the date of the certificate.

Penalty: 10 penalty units.

PART 3—ELECTRICAL SAFETY DUTIES

Division 1—Duties of owners and operators of high voltage electrical installations, complex electrical installations and supply networks of small gauge railways

301 General duties—high voltage electrical installations

(1) A person who owns or operates a high voltage electrical installation that is not a complex electrical installation (an ***owner or operator***) must ensure that—

(a) the installation or the installed, altered, repaired or maintained portion of the installation complies with Division 1 of Part 2 of these regulations; and

(b) any portion of the high voltage electrical installation using direct current does not leak stray electrical currents into the ground; and

(c) the electrical installation is safe and maintained and operated safely; and

(d) an assessment of the owner or operators compliance with the requirements of subregulation (2) is carried out at least once every two years.

Penalty: 20 penalty units.

(2) A person who owns or operates a high voltage electrical installation that is not a complex electrical installation (an ***owner or operator***) must ensure that—

(a) any person operating the electrical installation has a standard of qualifications, proficiency and experience that enables that person to safely perform their function; and

(b) any person operating or maintaining the electrical installation has written operating and maintenance procedures that describe the methods of operation, maintenance, earthing, isolation, energisation and de-energisation of the electrical installation; and

(c) any person operating or maintaining any part of the electrical installation is trained, authorised and instructed to perform the work on the electrical installation in accordance with the owner or operator's operating and maintenance procedures; and

(d) any person under the control of the owner or operator who is working on or near the electrical installation—

(i) is appropriately trained in accordance with the Blue Book and aware of the requirements of the Blue Book; and

(ii) complies with the provisions of the Blue Book that apply to the work that the person is carrying out; and

(e) an Electrical Access Authority for work on the electrical installation, as required by the Blue Book, is used by any person under the control of the owner or operator who is working on or near the electrical installation.

Penalty: 20 penalty units.

302 General duties—complex electrical installations

(1) For the purposes of section 75 of the Act, a person who owns or operates a complex electrical installation (an ***owner or operator***) must ensure that—

(a) the complex electrical installation or the installed, altered, repaired or maintained portion of the complex electrical installation

complies with Division 1 of Part 2 of these regulations; and

(b) any portion of the complex electrical installation using direct current does not leak stray electrical currents into the ground; and

(c) an assessment of the owner's or operator's compliance with the requirements of subregulation (2) is carried out at least once every two years.

(2) For the purposes of section 75 of the Act, a person who owns or operates a complex electrical installation (an ***owner or operator***) must ensure that—

(a) any person operating the complex electrical installation has a standard of qualifications, proficiency and experience that enables that person to safely perform their function; and

(b) any person operating or maintaining the complex electrical installation has written operating and maintenance procedures that describe the methods of operation, maintenance, earthing, isolation, energisation and de-energisation of the complex electrical installation; and

(c) any person operating or maintaining any part of the complex electrical installation is trained, authorised and instructed to perform the work on the complex electrical installation in accordance with the owner's or operator's operating and maintenance procedures; and

(d) any person under the control of the owner or operator who is working on or near a part of the complex electrical installation that is operating at high voltage—

(i) is appropriately trained in accordance with the Blue Book and aware of the requirements of the Blue Book; and

(ii) complies with the provisions of the Blue Book that apply to the work that the person is carrying out; and

(e) an Electrical Access Authority for work on the electrical installation, as required by the Blue Book, is used by any person under the control of the owner or operator who is working on or near a part of the complex electrical installation that is operating at high voltage.

303 General duties—small gauge railways

(1) A person who owns or operates the supply network of a small gauge railway (an ***owner or operator***) must ensure that—

(a) the supply network or the installed, altered, repaired or maintained portion of the supply network complies with Division 1 of Part 2 of these regulations; and

(b) the small gauge railway is designed, installed, operated and maintained in such a manner as to minimise the risks to safety of any person and the risks of damage to property arising from the leakage of stray electrical currents from that small gauge railway; and

(c) the supply network is safe and maintained and operated safely; and

(d) an assessment of the owner's or operator's compliance with the requirements of subregulation (2) is carried out at least once every two years.

Penalty: 20 penalty units.

(2) A person who owns or operates the supply network of a small gauge railway (an ***owner or operator***) must ensure that—

(a) any person operating the supply network of the system has a standard of qualifications, proficiency and experience that enables that person to safely perform their function; and

(b) any person operating or maintaining the supply network of the system has written operating and maintenance procedures that describe the methods of operation, maintenance, earthing, isolation, energisation and de-energisation of the supply network of the system; and

(c) any person operating or maintaining any part of the supply network of the system is trained, authorised and instructed to perform the work on the supply network of the system in accordance with the owner's or operator's operating and maintenance procedures; and

(d) any person under the control of the owner or operator who is working on or near a supply network of the system that is operating at high voltage—

(i) is appropriately trained in accordance with the Blue Book and aware of the requirements of the Blue Book; and

(ii) complies with the provisions of the Blue Book that apply to the work that the person is carrying out; and

(e) an Electrical Access Authority for work on the supply network of the system, as required by the Blue Book, is used by any person under the control of the owner or operator who is working on or near a supply network

of the system that is operating at high voltage.

Penalty: 20 penalty units.

Division 2—Duties of the public

304 Application

(1) A person may do any thing that is otherwise prohibited by regulations 305 to 321(excluding regulation 318(3)) if the person—

(a) does that thing when the relevant installation is isolated and earthed by the owner or operator of the installation; and

(b) does that thing with the written permission of the owner or operator of the relevant installation; and

(c) complies with any conditions imposed by the owner or operator in giving the permission.

(2) Subregulation (1)(a) does not apply to the supply network of—

(a) a major electricity company; or

(b) an interstate electricity supplier.

305 Sporting activities

A person must not throw, hit, kick, launch, discharge, fire or project, or cause to be thrown, hit, kicked, launched, discharged, fired or projected, any object—

(a) with intent to strike; or

(b) if there is significant risk that the object will strike—

any part of a relevant installation.

Penalty: 10 penalty units.

306 Aircraft, kites etc.

(1) A person must not launch, release, operate, fly or land any aircraft, glider, hang glider, hot air balloon, parachute, mechanically propelled model aircraft, model glider or kite within 45 metres of a relevant installation that is above the ground.

Penalty: 10 penalty units.

(2) Subregulation (1) does not apply to a person who lands an aircraft, glider, hang glider, hot air balloon or parachute if the particular circumstances reasonably necessitated the landing by the person.

307 Entangled objects

A person must not pull or interfere with any object resting on or entangled in any relevant installation unless the action is reasonably necessary to prevent or reduce injury to a person or damage to property.

Penalty: 10 penalty units.

308 Blasting and fires

A person must not—

(a) carry out blasting or cause blasting to be done; or

(b) light, cause to be lit or allow to remain alight any fire; or

(c) install equipment or operate processes likely to create an explosive atmosphere—

in the vicinity of a relevant installation in such a manner that the relevant installation is likely to be destabilised or damaged or an explosion is likely to occur.

Penalty: 20 penalty units.

309 Protection of underground electrical installations from damage

A person must not place or allow to remain, or cause to be placed or allowed to remain any corrosive, abrasive, heavy or deleterious material or substance that damages or is likely to damage a relevant installation above or in the vicinity of any underground portion of a relevant installation the existence and location of which should reasonably have been known to the person.

Penalty: 20 penalty units.

310 Excavating—private land

(1) A person must not make an excavation or penetration deeper than 300 millimetres on private land where the person should reasonably know that an underground line is located unless the person has inspected any record of the route of underground lines under regulation 218 and located any underground lines in the vicinity of the proposed excavation or penetration.

Penalty: 20 penalty units.

(2) A person must not penetrate, cut away, excavate or remove, or cause to be penetrated cut away, excavated or removed, any earth or material supporting or covering a relevant installation so as to—

(a) endanger the stability of the relevant installation; or

(b) reduce the depth of the underground installation to less than the minimum depth required by these Regulations.

Penalty: 20 penalty units.

(3) A person must not make an excavation or penetration deeper than 300 millimetres on private land within 10 000 millimetres of a SWER substation.

Penalty: 20 penalty units.

311 Excavating—public land and easements

(1) A person must not make an excavation or penetration deeper than 300 millimetres on public land or in an easement or on land adjacent to public land or an easement where the person should reasonably know that an underground line is located unless the person has inspected any relevant records kept in accordance with section 76 and 77 of the Act and located any underground lines in the vicinity of the proposed excavation or penetration.

Penalty: 20 penalty units.

(2) A person must not penetrate, cut away, excavate or remove, or cause to be penetrated, cut away, excavated or removed, any earth or material supporting or covering a relevant installation so as to—

(a) endanger the stability of the relevant installation; or

(b) reduce the depth of the underground installation to less than the minimum depth required by these Regulations.

Penalty: 20 penalty units.

(3) A person must not make an excavation or penetration deeper than 300 millimetres on public land or in an easement or on land adjacent to public land or an easement within 10 000 millimetres of a SWER substation.

Penalty: 20 penalty units.

312 Altering levels

(1) A person must not place material above ground level below a low voltage aerial line on public land that forms part of a relevant installation in a manner to alter the level of the ground.

Penalty: 20 penalty units.

(2) A person must not place material above ground level below a high voltage aerial line or aerial line of a small gauge railway or tramway system that forms part of a relevant installation in a manner to alter the level of the ground so as to reduce the distance between the ground and the line to less than the minimum distance required by regulation 223.

Penalty: 20 penalty units.

(3) A person must not place any material above ground level next to a relevant installation operating on public land so as to reduce the distance between the ground and the installation.

Penalty: 20 penalty units.

313 Minimum distances between parts of buildings, structures, scaffolding and posts and aerial lines

A person must not build, erect or maintain a building, structure, scaffolding or post or part of a building, structure, scaffolding or post in a place specified in Column 1 of Table 313 so that, at any time, the building, structure, scaffolding, post or part is closer to an aerial line of the kind specified in Row A of Table 313 that forms part of a relevant installation than the relevant minimum distance specified in the corresponding item set out in Column 2, 3, 4, 5, 6, 7, 8 or 9 of that Table.

Penalty: 20 penalty units.

TABLE 313—Minimum distances from parts of buildings, structures, scaffolding or posts to aerial lines of relevant installations

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*	*Column 8*	*Column 9*
	Minimum Distance and Nominal Voltage							
				Aerial lines				
Row A								
Aerial lines	d.c. traction conductors for a small gauge tramway system U ≤ 600V	d.c. traction conductors for a small gauge railway system U ≤ 1500V	Alternating current aerial lines U ≤ 1kV	1kV a.c. or 1500V d.c. <U ≤ 33kV	33kV< U ≤ 132kV	132kV< U ≤ 275kV	275kV< U ≤ 330kV	330kV< U ≤ 500kV
Row B								
Vertically above those parts of a building, structure, scaffolding or post normally accessible to persons	3700 mm	4600 mm	3700 mm	4600 mm	5000 mm	6800 mm	8000 mm	9800 mm
Row C								
Vertically above those parts of a building, structure, scaffolding or post not normally accessible but on which a person can stand	2700 mm	3700 mm	2700 mm	3700 mm	4600 mm	6000 mm	7000 mm	8000 mm
Row D								
In any direction from those parts of a building, structure, scaffolding or post not normally accessible to persons	600 mm	2700 mm	600 mm	2700 mm	3000 mm	3700 mm	4700 mm	6400 mm
Row E								
In any direction from windows, openings and balconies and those parts of a building, structure, scaffolding or post normally accessible to persons	1500 mm	2700 mm	1500 mm	2700 mm	3000 mm	4600 mm	5500 mm	6400 mm
Row F								
In any direction from a footbridge	4600 mm	4600 mm	4600 mm	4600 mm	4600 mm	6800 mm	8000 mm	9800 mm

314 Minimum distances between materials and certain aerial lines

A person must not—

(a) place or allow to remain any flammable material closer than 3000 millimetres in any direction from a wall or fence of any substation or switch yard that forms part of a relevant installation; or

(b) place or allow to remain any flammable material vertically below an aerial line that forms part of a relevant installation; or

(c) place or allow to remain any flammable material so that, at any time, the flammable material is closer than the relevant horizontal distance specified in Row 2 Table 314 from any point of the vertical projection below an aerial line that forms part of a relevant installation; or

(d) place or allow to remain any material so that, at any time, the material is closer than the relevant horizontal distance marked "h" specified in Row 3 of Table 314 from any point of the vertical projection below an aerial line that forms part of a relevant installation unless the material is no closer vertically below the line than the vertical distance marked "v" specified in Row 4 of Table 314.

Penalty: 20 penalty units.

TABLE 314—Minimum distances from materials to aerial lines

Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*
		Aerial lines Nominal voltage ("U")				
Type of material	U ≤ 1500V d.c. *traction conductor*	1kV a.c. or 1500V d.c. < U ≤ 33kV	33kV< U ≤ 132kV	132kV< U ≤ 275kV	275kV< U ≤ 330kV	330kV< U ≤ 500kV
Row 1						
Flammable material Horizontal distance	3000 mm	3000 mm	3000 mm	4600 mm	5500 mm	6400 mm
Row 2						
Any other material						
"h"	1500 mm	2100 mm	3000 mm	4500 mm	5500 mm	6400 mm
Row 3						
"v"	3700 mm	4600 mm	4600 mm	6800 mm	8000 mm	9800 mm

315 Minimum distances between parts of vehicles, plant, machinery and aerial lines

(1) A person must not operate a vehicle or fixed or mobile plant or machinery so that any part of the vehicle, plant, machinery or any fixed or removable attachment of that vehicle, plant or machinery comes closer to an aerial line that forms part of a relevant installation set out in Row A of Table 315 than the relevant minimum distance specified in the corresponding item in Row B of Table 315.

Penalty: 20 penalty units.

(2) This regulation does not apply to a person transporting a load.

TABLE 315—Minimum distances from any part of a vehicle, plant or machinery to aerial lines

		Column 1	*Column 2*	*Column 3*	*Column 4*
Row A	Voltage	U ≤ 1500V d.c. traction conductor	U ≤ 66kV	66kV< U ≤ 132kV	132kV< U ≤ 500kV
Row B	Minimum distance from the aerial line in all directions	2000 mm	2000 mm	4000 mm	6400 mm

316 Minimum distances between transported loads and aerial lines

A person must not drive or manoeuvre a vehicle or transport a load so that the load is closer to an aerial line that forms part of a relevant installation set out in Row A of Table316 than the relevant minimum distance specified in the corresponding item in Row B of Table 316.

Penalty: 20 penalty units.

TABLE 316—Minimum distances from transported loads to aerial lines

		Column 1	*Column 2*	*Column 3*	*Column 4*	*Column 5*	*Column 6*	*Column 7*
		Alternating current aerial lines Nominal voltage ("U")						
Row A		U ≤ 1kV a.c. bare conductor and U ≤ 1500V d.c. traction conductor	U ≤ 1kV a.c. insulated conductor	1kV< U ≤ 66kV a.c. and 1500V < U ≤ 66kV d.c.	66kV< U ≤ 132kV	132kV< U ≤ 275kV	275kV< U ≤ 330kV	330kV< U ≤ 500kV
Row B	Minimum distance from the aerial line in all directions	600 mm	300 mm	1000 mm	1500 mm	4600 mm	5500 mm	6400 mm

317 Minimum distances between aerial lines

(1) A person who owns or operates an electrical installation must not erect, maintain or allow to remain or cause to be erected or maintained an aerial line set out in Column 1 or 2 of Table 317.1 so that, at any time, the aerial line is closer to an aerial line specified in the relevant minimum distance specified in the corresponding item in Column 3 or 4 of the Table.

Penalty: 20 penalty units.

(2) A person must not erect or maintain an aerial line so that the nominal voltage of the lower circuit of an aerial line is greater than the nominal voltage of the upper circuit of an aerial line.

Penalty: 20 penalty units.

(3) A person must not erect or maintain a circuit or other cable system on a pole line so that, at any time, the circuit or other cable system is closer than the relevant minimum distance specified in Table 317.2 to—

(a) a circuit or other cable system or pole line of a relevant installation specified in the Table; or

(b) any part of a relevant installation specified in the Table not attached to the pole line.

Penalty: 20 penalty units.

(4) A person must not erect or maintain an aerial line so that the line crosses another aerial line unless it is attached to the same supporting structure.

Penalty: 20 penalty units.

(5) A person must not erect or maintain an electrolysis drainage cable so that at any time it crosses a d.c. traction conductor except where the

conductor and the cable are attached to a common pole or support.

Penalty: 20 penalty units.

TABLE 317.1—Minimum distances between aerial lines

Column 1	*Column 2*	*Column 3*	*Column 4*
Type and nominal voltage ("U")		*Minimum distance*	
Upper circuit	*Lower circuit*	*Between the points where the aerial lines are attached to a common pole or support*	*Between the aerial line spans. Circuits on the same pole line or circuits crossing not on same pole line*
Row A			
Low voltage alternating current aerial line	d.c. traction conductor U≤ 1500V	1000 mm	1000 mm
Row B			
d.c. traction conductor U≤ 1500V	Electrolysis drainage cable	1000 mm	1000 mm
Row C			
d.c. traction conductor U≤ 1500V	Other cable system	1000 mm	1000 mm

TABLE 317.2—Minimum distances from circuits or other cable systems on pole lines to circuits or other cable systems on pole lines of relevant installations and any part of a relevant installation not attached to the pole line

Alternating current aerial lines Nominal voltage ('U')								
U ≤ 1500V d.c. traction conductor	*Other cable systems and insulated conductor U ≤ 1kV a.c.*	*U ≤ 1kV a.c. bare conductor*	*1kV a.c or 1500V d.c. < U ≤ 33kV insulated conductor*	*1kV a.c. or 1500V d.c. < U ≤ 33kV bare conductor*	*33kV< U≤132kV*	*132kV< U≤275kV*	*U>275kV< U≤330kV*	*330kV< U≤500kV*
1500 mm	100 mm	1500 mm	1500 mm	2100 mm	3000 mm	4500 mm	5000 mm	6000 mm

318 Minimum distances between persons and aerial lines

(1) A person must not come closer to an aerial line that forms part of a relevant installation set out in Column 1 of Table 318 than the minimum distance specified in the corresponding item in Column 2 of Table 318.

Penalty: 20 penalty units.

(2) This regulation does not apply to—

(a) a licensed electrician engaged by the owner or operator of the aerial line to carry out electrical installation work on that line; or

(b) a person engaged in tree clearing work who holds a current certificate specifying satisfactory completion of a training course in tree clearing, approved by Energy Safe Victoria; or

(c) a telecommunications worker who holds a current certificate specifying satisfactory completion of a training course in power line awareness, approved by Energy Safe Victoria; or

(d) a person employed or engaged by a major electricity company who is carrying out electrical work on an aerial line owned by the major electricity company; or

(e) a person engaged by the owner or operator of the aerial line who is carrying out electrical installation work on the line, under the effective supervision of a licensed electrician, if the person—

(i) has completed a contract of training as an electric line worker that involves electrical work on high voltage aerial lines; and

(ii) has the written permission of the owner or operator of the line.

(3) A person referred to in subregulation (2) must comply with the Blue Book.

TABLE 318—Minimum distances from persons to aerial lines

Column 1 *Type of aerial line* *Nominal voltage ("U")*	*Column 2* *Minimum distance*
Insulated low voltage conductors	100 mm
Bare or covered low voltage conductors	1500 mm
High voltage conductors $U \leq 66kV$	2000 mm
High voltage conductors $66kV < U \leq 220kV$	4000 mm
High voltage conductors $220kV < U \leq 500kV$	6000 mm

319 Tree clearing

(1) A person, other than an authorised person, must not prune or clear the whole or any part of a tree if the tree or any part of the tree that is pruned or cleared could fall closer to a relevant installation than—

(a) in the case of a relevant installation operating at low voltage electrical, 2 metres in all directions; and

(b) in the case of a high voltage electrical installation or aerial line of a small gauge railway or tramway system with a voltage set out in Row A of Table 319, the relevant minimum distance specified in the corresponding item set out in Column 1 or 2 of Table 319.

Penalty: 20 penalty units.

(2) In this regulation ***authorised person*** means a person who holds a current certificate specifying satisfactory completion of a training course in tree clearing, approved by Energy Safe Victoria.

TABLE 319—Minimum distances from falling trees or parts of trees to high voltage electrical installations and aerial lines of a small gauge railway or tramway system

		Column 1	*Column 2*
		Nominal voltage ("U")	
A		U ≤ 66kV alternating current or U ≤1500V d.c. traction conductor	U > 66kV alternating current or U > 1500V direct current
B	Minimum distance in all directions	2000 mm	6000 mm

320 Damage and interference

(1) A person must not attach aerial lines or other cable systems to a low voltage electrical installation operating on alternating current on public land.

Penalty: 20 penalty units.

(2) A person must not in a manner that would cause or be likely to cause risk to persons or damage to property—

(a) damage or interfere with a relevant installation; or

(b) damage or interfere with a seal or lock preventing entry or access to a relevant installation; or

(c) deface a sign relating to electrical safety on or near a relevant installation; or

(d) damage or interfere with metering equipment.

Penalty: 20 penalty units.

321 Placing of materials

A person must not place any material, or allow any material to remain, in a manner that will—

(a) impede access to any switchboard or door, gate or entrance to a substation, switchroom or switchyard of an electrical installation; or

(b) interfere with the free flow of air through any opening or fitting used for ventilation in the walls of a substation, switchroom or switchyard of an electrical installation.

Penalty: 20 penalty units.

PART 4—EXEMPTIONS

401 Exemptions

(1) Energy Safe Victoria may, on the application of any person, exempt any electrical work or any person from any of the requirements of these Regulations subject to any conditions specified by Energy Safe Victoria.

(2) An application must be in writing and contain details of—

(a) the applicant's name, telephone number, and business and postal address; and

(b) the exemption requested; and

(c) the reasons for the exemption.

(3) An application referred to in subregulation (2) must be accompanied by—

(a) any relevant technical information, including details showing that the granting of an exemption will not reduce the level of safety from physical injury, fire and electric shock from the level that would have been provided under these regulations; and

(b) a written agreement to the proposed exemption signed by the owner, occupier or controlling body of the land on which the work is to be carried out; and

(c) the application fee.

(4) The prescribed fee for an application for an exemption under this regulation is 5·99 fee units.

(5) Energy Safe Victoria may waive or rebate payment of all or part of the prescribed fee payable under this regulation if—

(a) an application is withdrawn and a new application is submitted; or

(b) in the opinion of Energy Safe Victoria, the payment of the prescribed fee is not warranted because of the minor nature of the consideration of the application to be decided; or

(c) in the opinion of Energy Safe Victoria, dealing with the application imposes on Energy Safe Victoria no appreciable burden or a lesser burden than usual.

(6) Energy Safe Victoria may revoke an exemption.

(7) A person to whom an exemption applies must comply with any conditions of the exemption imposed by Energy Safe Victoria.

Penalty: 20 penalty units.

PART 5—INFRINGEMENT OFFENCES

501 Provisions for which infringement notices may be served

For the purposes of paragraph (b) the definition of ***prescribed offence*** in section 140A of the Act, regulations 241, 243(1), 244, 248, 249(1), 250(3), 252, 253(1), 254, 256 (1), (2) and (3), 305, 306(1), 307, 308, 309, 310(1), (2) and (3), 311(1), (2) and (3), 312(1), (2) and (3), 313, 314, 315(1), 316, 317(1), (2), (3), (4) and (5), 318(1), 319(1), 320(1) and (2) 321 and 401(7) are prescribed provisions.

PART 6—RELATED AMENDMENTS

601 Amendments to related Regulations

The Regulations referred to in the heading to an item in Schedule 3 are amended as set out in that item.

SCHEDULES

SCHEDULE 1

REVOKED REGULATIONS

S.R. No.	*Title*
141/1999	Electricity Safety (Network Assets) Regulations 1999
158/2005	Electricity Safety (Network Assets) (Amendment) Regulations 2005

SCHEDULE 2

CLASSIFICATION OF ROADS

Part A

For the purposes of Table 223.1 freeways, primary roads and highways are defined as all those roads that are shown—

(a) in the street directory, Greater Melbourne, published by Melway Publishing Pty. Ltd. as published from time to time, as—

(i) freeways, tollways and primary roads;

(ii) Over-Dimensional Routes; and

(iii) the collector roads and local traffic streets known as—

Anderson Road, West Melbourne

Appleton Dock Road, West Melbourne

Coode Road, West Melbourne

Cowper Street, Footscray

Dock Link Road, West Melbourne

Gibbons Street, West Melbourne

MacKenzie Road, West Melbourne

North Wharf Road, Docklands

Phillipps Road, West Melbourne

Swanson Dock Road, West Melbourne; and

(b) in the street directory, VicRoads Country Street Directory of Victoria, published by the Royal Automobile Club of Victoria as published from time to time, as freeways, state highways, main roads, tourists' roads and forest roads.

Part B

For the purposes of Table 223.1, secondary roads and collector roads are defined as all those roads that are shown in the street directory, Greater Melbourne, published by Melway Publishing Pty. Ltd. as published from time to time, as secondary roads and collector roads except those—

(a) collector roads named in paragraph (a)(iii) of Part A of this Schedule;

(b) roads named as Over-Dimensional Routes.

SCHEDULE 3

AMENDMENTS TO RELATED REGULATIONS

1 Electricity Safety (Installations) Regulations 1999

1.1 Regulations 102(c), (d), (e), (f), (h) and (i) are **revoked**.

1.2 Parts 4 and 4A are **revoked**.

1.3 Regulation 703 is **revoked**.

1.5 For Schedule 2 **substitute**—

"**SCHEDULE 2**

FEES

REGISTRATION OF ELECTRICAL CONTRACTORS	
• Registration of electrical contractor	$240
• Renewal of registration of electrical contractor	$170
• Issue of duplicate registration card	$50
• Copy of the register	$150
• Extract from the register	$25
• Application fee for examination	$180
LICENSING OF ELECTRICAL WORKERS	
• Application fee for issue of licence for an electrical installation worker	$200
• Application fee for renewal of licence for an electrical installation worker	$130
• Application fee for issue of licence for an electrical inspector	$240
• Application fee for renewal of licence for an electrical inspector	$170
• Issue of duplicate written licence	$50
• Application fee for examination	$180".

2 Electricity Safety (Infringements) Regulations 2000

2.1 Regulations 5(a) and 5(f) are **revoked**.

2.2 In regulation 5(e) **omit**—

"404(1), 409(2), 412(1), 413(1), 414(1), (2) and (3), 438(1), 439, 440(1) and (3), 441(1), 442(1), 443(1) and 444,".

ENDNOTES

Fee Units

These Regulations provide for fees by reference to fee units within the meaning of the **Monetary Units Act 2004**.

The amount of the fee is to be calculated, in accordance with section 7 of that Act, by multiplying the number of fee units applicable by the value of a fee unit.

The value of a fee unit for the financial year commencing 1 July 2009 is $11.69. The amount of the calculated fee may be rounded to the nearest 10 cents.

The value of a fee unit for future financial years is to be fixed by the Treasurer under section 5 of the **Monetary Units Act 2004**. The value of a fee unit for a financial year must be published in the Government Gazette and a Victorian newspaper before 1 June in the preceding financial year.

Penalty Units

These Regulations provide for penalties by reference to penalty units within the meaning of section 110 of the **Sentencing Act 1991**. The amount of the penalty is to be calculated, in accordance with section 7 of the **Monetary Units Act 2004**, by multiplying the number of penalty units applicable by the value of a penalty unit.

The value of a penalty unit for the financial year commencing 1 July 2009 is $116.82.

The amount of the calculated penalty may be rounded to the nearest dollar.

The value of a penalty unit for future financial years is to be fixed by the Treasurer under section 5 of the **Monetary Units Act 2004**. The value of a penalty unit for a financial year must be published in the Government Gazette and a Victorian newspaper before 1 June in the preceding financial year.

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Table of Applied, Adopted or Incorporated Matter Required by the Subordinate Legislation Regulations 2004

Note that the following table of applied, adopted or incorporated matter is included in accordance with the requirements of regulation 5 of the Subordinate Legislation Regulations 2004.

Statutory Rule Provision	**Title of applied, adopted or incorporated document**	**Matter in applied, adopted or incorporated document**
Regulation 202(1)(b)	Australian/New Zealand Standard, 'Wiring rules', AS/NZS 3000	Part 2
Regulation 203(a)	Australian/New Zealand Standard, 'Wiring rules', AS/NZS 3000 Australian/New Zealand Standard, 'Electrical installations – domestic installations', AS/NZS 3018	Part 2 The Whole
Regulation 204(2)	Australian/New Zealand Standard, 'Wiring rules', AS/NZS 3000	section 1.5 of Part 1
Regulation 211	Australian/New Zealand Standard, 'Electrical installations – electric security fences', AS/NZS 3016	The Whole
Regulation 214(3)(b)	Australian/New Zealand Standard, 'Conduits and fittings for electrical installations', AS/NZS 2053 Australian/New Zealand Standard, 'Steel tubes and tubulars for ordinary service', AS 1074	The Whole The Whole

Statutory Rule Provision	**Title of applied, adopted or incorporated document**	**Matter in applied, adopted or incorporated document**
Regulation 214(4)(a)	Australian/New Zealand Standard, 'Conduits and fittings for electrical installations', AS/NZS 2053	The Whole
	Australian/New Zealand Standard, 'Steel tubes and tubulars for ordinary service', AS 1074	The Whole
Regulation 215(a)	Australian/New Zealand Standard, 'Conduits and fittings for electrical installations', AS/NZS 2053	The Whole
Regulation 215(b)	Australian Standard, 'Steel tubes and tubulars for ordinary service', AS 1074	The Whole
Regulation 216(1)(f)(i)	Australian Standard, 'Concrete structures', AS 3600	The Whole
Regulation 216(1)(f)(ii)	Australian Standard, 'Polymeric cable protection covers', AS 4702	The Whole
Regulation 217(2)(b)	Australian/New Zealand Standard, 'Conduits and fittings for electrical installations', AS/NZS 2053	The Whole
Regulation 217(2)(c)	Australian Standard, 'Steel tubes and tubulars for ordinary service', AS 1074	The Whole

Statutory Rule Provision	**Title of applied, adopted or incorporated document**	**Matter in applied, adopted or incorporated document**
Regulation 219(2)(a)	Australian/New Zealand Standard, Hot-dip galvanized (zinc) coatings on fabricated ferrous articles', AS/NZS 4680	The Whole
	Australian/New Zealand Standard, Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process', AS/NZS 4792	The Whole
Regulation 219(2)(b)	Australian Standard, 'Steel tubes and tubulars for ordinary service', AS 1074	The Whole
Regulation 219(3)	Australian/New Zealand Standard, 'Conduits and fittings for electrical installations', AS/NZS 2053	The Whole
Regulation 219(3)(a)	Australian Standard, 'Substations and high voltage installations exceeding 1kV a.c.', AS 2067	The Whole
Regulation 230	Australian Standard, 'Air navigation – cables and their supporting structures – marking and safety requirements – permanent marking of overhead cables and their supporting structures for other than planned low-level flying', AS 3891.1	The Whole
	Australian Standard, 'Air navigation – cables and their supporting structures – marking and safety requirements – marking of overhead cables for low-level flying operations', AS 3891.2	The Whole

Statutory Rule Provision	**Title of applied, adopted or incorporated document**	**Matter in applied, adopted or incorporated document**
Regulation 231	Australian/New Zealand Standard, 'Wiring rules', AS/NZS 3000	Part 2
Regulation 301(2)(d)(i)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 301(2)(d)(ii)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 301(2)(e)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 302(2)(d)(i)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 302(2)(d)(ii)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 302(2)(e)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 303(2)(d)(i)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 303(2)(d)(ii)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole
Regulation 303(2)(e)	Code of practice of electrical safety for work on or near high voltage apparatus	The Whole