REGULATORY IMPACT STATEMENT

Gas Safety (Safety Case) Regulations 2008

July 2008

This Regulatory Impact Statement has been prepared in accordance with the requirements of the Subordinate Legislation Act 1994. Its purpose is to inform interested parties regarding a proposal to make new regulations. Comments are invited and should be addressed to Andrew Padanyi, Legal Officer, Energy Safe Victoria, PO Box 262 Collins Street West, Victoria 8007 or emailed to ***apadanyi@esv.vic.gov.au*** *by Friday 5 September 2008.*

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Summary

The proposed Gas Safety (Safety Case) Regulations 2008 are intended to replace, with limited amendments, the current Gas Safety (Safety Case) Regulations 1999. Section 37 of the **Gas Safety Act 1997** requires all gas companies to develop and implement a safety case as the central mechanism in acquitting their safety obligations under the act. The proposed regulations operationalise this requirement by a setting out the matters required to be included in a safety case and providing a range of other necessary supporting detail in relation to the implementation of the act's safety case requirements.

Based on a significant number of face-to-face interviews conducted with gas companies and questionnaire responses received from them, the gross costs to gas companies of compliance with the proposed regulations has been estimated to have a present value of $13.3 million over 10 years. However, gas company representatives have indicated clearly that a substantial proportion of the tasks that must be carried out as part of the safety Case requirement would, even in the absence of a legislative requirement for a safety case, continue to be undertaken. This reflects the fact that the safety case approach, involving a systematic process of risk identification, risk assessment and design of risk control measures is increasingly seen as constituting best practice in relation to gas company operations.

Given this factor, it is considered that the incremental costs attributable directly to the proposed regulations constitute only a minority of the gross costs identified above. While it is necessarily impossible to estimate with any precision the proportion of these gross costs that can be regarded as directly attributed to the regulations, it is considered that this proportion is unlikely to be greater than 25%. Thus, the net costs to gas companies over the expected 10-year life of the proposed regulations are likely to be less than or equal to $3.3 million. The estimated costs to ESV of administering and enforcing the regulations are an additional $324,000 per annum, or $2.7 million over 10 years. Thus, the total costs of the regulations are believed to be of the order of $6.0 million.

The expected benefits of the proposed regulations are necessarily those of better safety performance. Better safety performance can be expected to yield a range of specific benefits, including the reductions in fatalities and injuries, reduced incidence and severity of property damage and reductions in the number and duration of interruptions to gas supply, and in the size of the consequent economic losses.

It has been estimated that, for each 10% reduction in the incidence of fatalities and injuries, benefits with a value of approximately $1.81 million would accrue over a 10 year period. Benefits in terms of reduced property damage and reduced economic losses due to fewer interruptions in gas supply would be expected to at least double this amount.

In sum, the proposed regulations can be considered likely to yield a net benefit to society provided that they are seen to improve overall gas safety performance by an amount approximately equal to 16.6% over the performance level that would otherwise be observed. It is considered highly likely that improvements in performance of this order of magnitude are being achieved as a result of the implementation of safety case regulations over the last 10 years. It is particularly important to note, in this context, that there is widespread support among regulated gas companies for the current and proposed safety case regulations and a clear view that the majority of the required compliance tasks in respect of these regulations yield a positive net benefit from their private viewpoints.

Two feasible alternatives have been identified and assessed. The first of these is the adoption in the proposed regulations of greater or lesser degrees of prescription as to the required contents of safety cases and associated process matters. Several potential advantages and disadvantages of change in this area are identified. However, consultation undertaken with gas companies has revealed a strong preference for the existing degree of prescription to be broadly maintained, while the experience of ESV in implementing the existing regulations also leads to the conclusion that the current degree of prescription incorporated in regulation is generally appropriate.

The second alternative considered is that of applying the safety case requirements only to asset owning gas companies. This is the general approach taken in a number of other states and be expected to lead to some reduction in regulatory costs, particularly since the largest are of the costs of the safety case regulations are believed to accrue to non asset owning gas retailers. However, it is believed that this approach would, to some degree, compromise safety outcomes. Moreover, consultation undertaken with gas retailers head indicated that they generally believe that the requirement to comply with these regulations entails significant private benefits for their businesses. Finally, adoption of this alternative would require amendments to be made to be **Gas Safety Act 1997**, which currently requires all gas companies, whether asset owning or not, to develop and submit a safety case.

Given the above, the proposed regulations are preferred to the two alternatives identified.

Table of contents

1. Introduction

The proposed Gas Safety (Safety Case) Regulations 2008 will replace, with limited amendments, the Gas Safety (Safety Case) Regulations 1999. The primary legislation regulating safety in the gas transmission, distribution and retail industry is the **Gas Safety Act 1997**. Section 37 of the Act requires that gas companies develop and implement a gas safety case. The Gas (Safety Case) Regulations 1999 establish detailed requirements in relation to the development, implementation and review of safety cases.

2. Nature and extent of the problem

2.1. Risks associated with gas transmission and distribution

2.1.1. Overview

A fundamental consideration in assessing the risks associated with gas transmission and distribution[1] is that the risk profile associated with these activities is one of a low probability of incidents occurring, combined with a high probable severity of incident consequences.

This risk profile has a number of implications. Firstly, the real risks of a "disaster scenario" unfolding imply that regulators should adopt a somewhat higher degree of risk aversion than may be the case in other risk contexts. Second, low incident probabilities combined with the relatively limited extent of the Victorian gas supply network[2] imply that significant degrees of uncertainty will attach to attempts to measure actual safety performance. This, in turn, implies that regulatory decision-making must be undertaken under conditions of significant uncertainty.

2.1.2. Data on gas-related accidents and incidents

The major source of data on the comparative safety performance of the Victorian gas supply network is a 2004 report compiled for the former Office of Gas Safety[3], which compares Victorian performance with that of New Zealand,

[1] Gas transmission companies own or operate transmission pipelines, which are designed to convey natural gas at a pressure exceeding 1,050 kiloPascal. Examples of transmission pipelines include the Eastern Gas Pipeline (Longford to Sydney) and the Tasmanian Gas Pipeline (Longford to Bell Bay). In general terms gas distribution pipelines are used to supply gas from the transmission system to customers' installations.

[2] While most of the Victorian population is connected to the natural gas grid, the relatively small total population of Victoria and its distribution within a relatively compact geographical area mean that the total number of supply network kilometres included in the Victorian grid is relatively small by international standards.

[3] *Overseas and Australian Statistics for Gas Transmission and Distribution Incidents.* Report prepared for the Office of Gas Safety by Risk and Reliability Associates Pty Ltd, January 2004.

the United States of America, Canada, Europe, Russia and Japan. Tables 1 and 2, below, are drawn from this report and provide summary data on the performance of the gas transmission and distribution sectors respectively.

Table 1: Gas transmission system data, 1997 - 2003

Year	2003	2002	2001	2000	1999	1998	1997
Release	0	1	1	2	0	0	0
Pipe Contact (note 1)	4	1	1	1	0	0	3
Near Miss (note 2)	11	5	11	27	7	8	7
TOTAL INCIDENTS	15	7	13	30	7	8	10
Length of Transmission Mains (km)	2998	2998	2998	2998	2718	2718	2718
Damage Incidents/Mkm	1334	667	667	1001	0	0	1104
Reported Leaks/Mkm	0	334	334	667	0	0	0

Note 1: For transmission pipelines, any event involving contact with TP assets is defined as a level 2 incident. 13 level 2 or above incidents were extracted from the OGS database for transmission pipelines, comprising 4 releases, 4 instances of pipeline contact (damage) and 5 near misses. A further three instances of pipeline contact were recorded as level 1 incidents in 2003, and 3 cases of transmission pipeline contact in 1997 were sourced from the TDW survey.

Note 2: All recorded level 1 instances of third party unauthorised activity were assumed to be near misses, unless otherwise stated.

No fatalities or injuries occurred as a result of the operations of the gas transmission system over the seven years covered in table 1. Moreover, there were only four incidents involving an accidental release of gas over the same period, or an average of slightly more than 0.5 gas release incidents per year. There was a total of 10 incidents of contact with gas transmission pipelines, or fewer than 1.5 incidents per year on average.

The total number of incidents recorded over the seven-year period was 90, an average of approximately 13 per year. The great majority of these incidents were near misses.

Table 2: Gas distribution system data, 1997 – 2002

http://www.esv.vic.gov.au/Portals/0/About%20ESV/Files/Gas%20supply%20reports/OverseasandAustralianStatisticsforGasTransmissionandDistributionIncidents.pdf

	2002	2001	2000	1999	1998	1997
Length of Distribution Mains (km)	25514	24974	24606	24060	23596	23074
Mains Damage	315	361	347	361	-	-
Level 2 mains Incidents	25	32	32	28	11	0
Injuries (mains accidents)	0	2	2	1	0	0
Approximate No. of services	1350000	1320000	1290000	1260000	1230000	1200000
Services Damage	3730	2630	2889	3547	-	-
Level 2 service Incidents	8	7	14	10	1	2
Injuries (service accidents)	4	2	2	4	0	2
Total Injuries	4	4	4	5	0	2
Mains Damage/Thousand km	12.35	14.46	14.10	15.00	-	-
Main Injury/Million km	0.00	80.08	81.28	41.56	0.00	0.00
Injuries/Million Services	2.96	1.52	1.55	3.17	0.00	1.67

Note: For a distribution incident to be classified as level 2 or above, a release must occur, resulting in minor injury, evacuation, traffic diversion, fire, or attendance by emergency services.

No fatalities were recorded as a result of the operation of the gas distribution system over the six-year period covered by Table 2. A total of 19 injuries were recorded over this period, equivalent to an average of approximately 3.2 injuries per year.

2.1.3. International comparisons

The report notes that there have been no fatalities associated with gas transmission or distribution in Victoria in the past thirty years[4]. However, while this appears to indicate that a very good level of safety performance is being achieved, a key finding of the report was that the Victorian transmission system is too small to allow firm conclusions to be drawn regarding relative safety performance via comparison of Victorian and international data. Specifically, it was noted that:

> *No fatalities have occurred over the previous 30 years, however at a rate comparable to US transmission systems, only one fatality per 60 years for Victoria's 3000km transmission system would be expected." (p 4).*

On the other hand, the report noted that the Victorian *distribution* system appears to have a safety record that is superior to that of its US equivalent. While no fatalities have been recorded over the last thirty years in relation to the Victorian gas transmission system, had the fatality rate had been equal to that observed in the US, five fatalities would have been expected over this period.

Around 74% of gas distribution related injuries were found to occur due to services damage, at a rate of 1.8 injuries per million service-years. However, no comparative international statistic for service damage incidents was able to be identified.

[4] While fatalities did occur at Longford in 1998, Longford is a gas production and treatment plant,rather than a gas transmission or distribution facility, and is therefore outside the scope of the proposed regulations

Moreover, while it was found that several major international reported incident and injury databases were available, substantial differences in the classifications of these events in different databases was found to preclude meaningful comparisons being drawn.

Notwithstanding the *caveats* noted above, the report concludes that:

> *"Overall, for the statistics which appear directly comparable, that is, leak and fatality, the Victorian performance appears to be as good as or better than the comparable international networks and systems." (p 4).*

It should be noted that one reason for the international focus of the report – and of efforts to benchmark gas safety performance in Victoria in general – is that Victoria has a much more extensive gas reticulation system than do other Australian states. This reflects the historical fact that by far the largest commercially exploited gas fields have been located off the Victorian coast. Thus, the relatively small size of gas operations in other States means that it is not possible to generate meaningful data to benchmark Victorian gas safety performance against that of other Australian States.

In sum, while some uncertainty inevitably exists as a result of the relatively small size of the gas transmission and distribution sectors in Victoria, available data indicate that gas safety performance in Victoria compares very favourably in the international context. This implies that the existing regulatory regime governing the gas supply industry is an effective one.

The proposed regulations would have the effect of maintaining key elements of the existing regulatory structure, while implementing a range of a specific improvements reflecting both the regulatory experience accumulated to date and changes in the regulatory context due to the development of a competitive private gas supply industry in Victoria since the 1990s and, in particular, to the accumulated experience of gas supply companies in operating in the Victorian context.

2.1.4. Major specific risks

Table 3: Gas incidents 1998/9 to 2006/07 – Gas transmission & distribution

Effect	98/9	99/00	00/01	01/2	02/3	03/4	04/5	05/6	06/7	Total
Death										0
Evacuation	8	7	17	5	9	12	8	10	6	82
Injury Medical Attention	1	4	3	0	1	3	3	1	4	20
Injury No Medical Attention	0	0	0	3	1	0	0	1	1	6
Loss of	24	44	45	29	48	22	27	15	36	290

Supply										
No Impact	40	28	40	30	46	170	117	140	193	804
Property Damage	3	8	9	10	22	5	11	43	13	124
Traffic Diversion	1	3	11	8	7	1	0	0	1	32
Unknown	0	14	11	7	0	14	31	4	1	82
Total	**78**	**108**	**136**	**92**	**134**	**227**	**197**	**214**	**255**	**1440**

Table 4: Gas incidents 1998/9 to 2006/07 – Gas installations

Effect	**98/9**	**99/00**	**00/01**	**01/2**	**02/3**	**03/4**	**04/5**	**05/6**	**06/7**	**Total**
Death	1	2	2	1	3	0	2	0	2	13
Evacuation	3	3	5	8	8	13	7	6	6	59
Injury Medical attention	17	16	11	18	32	39	28	22	23	206
Injury no medical attention	20	14	8	14	19	11	10	2	9	107
Loss of supply	2	17	27	20	26	9	5	5	7	118
No impact	15	33	64	53	95	258	185	177	211	1091
Property damage	260	331	337	453	358	142	83	58	85	2107
Unknown	7	45	34	5	6	2	70	5	0	174
Total	**325**	**461**	**488**	**572**	**547**	**474**	**390**	**275**	**343**	**3875**

Tables 3 and 4 provide summary data on all gas incidents occurring from 1998/9 to 2006/07 inclusive[5]. Gas incidents occurring within the transmission and distribution system are recorded in Table 3, while those occurring in customer gas installations are recorded in Table 4. Gas incidents which did not result in any identified harms are also recorded in these tables and can be regarded as "near misses". These incidents are included in gas safety statistics in the interests of facilitating a better understanding of risk factors and consequently improving the ability to address them.

No deaths have been associated with incidents in the gas transmission and distribution system over the nine years to 2006/07, while 13 deaths have occurred following incidents related to gas installations. A similar pattern is evident in relation to injuries: 206 of 226 injuries (or 91%) requiring medical attention related to gas installations, while 107 of 113 injuries (95%) not requiring medical attention related to gas installations.

[5] This represents all available data collected according to current data definitions and data reporting arrangements.

In aggregate terms, 3875 of 5315 incidents, or 73%, related to gas installations, with the remaining 27% relating to the gas transmission and distribution system. It should be noted that the majority of recorded gas transmission/distribution incidents (804 of 1440) resulted in no recorded harms, while only 28% of gas installation incidents were in this category.

Summary of major risks associated with gas transmission and distribution

The following summarises the major types of risks arising from the operations of gas transmission and distribution companies. Safety cases are expected to make provisions in respect of all of these risks.

Loss of supply

Loss of gas supply is a physical interruption to supply caused by pipe rupture, typically caused by corrosion, soil movement, external damage (e.g. from backhoes, etc) or blockage (eg due to excess water in the pipe). The escape of gas gives rise to a risk of explosion or other potentially hazardous situation. The loss of supply is likely to cause substantial downstream costs for customers, while risks also arise at the time of reinstatement of supply after an interruption.

Contacts with transmission pipelines average about 1.5 “hits” per annum (see the 3rd row of Table 1). Hits on distribution lines average 3,500 to 4,000 per annum (see 3rd and 7th rows in Table 2, mains damage and services damage). These episodes are mainly due to 3rd party damage, also known as “external mechanical damage”.

Supply of off-specification gas

The supply of off-specification gas yields risks of explosion due to the fact that gas appliances are designed to operate safely when fuelled with gas that meets certain specifications.

Supply of gas to an unsafe installation

To comply with section 34 of the GSA, gas distribution companies will not fit a meter to a new installation until they receive notification from the retailer that a compliance certificate (in the case of a standard gas installation) or ESV supply approval (in the case of a complex installation) has been lodged or received.

That is, while the direct cause of the risks due to an unsafe customer installation is poor practice by the installer, the legislation provides that gas companies are responsible for managing these risks.

Inadequate emergency preparedness

The nature of the emergencies likely to confront gas transmission and distribution companies relate mainly to interference with pipeline integrity, eg. contact causing rupture or other damage. In the event of supply interruption, suppliers need to notify their retailers so that downstream customers can be contacted and appropriate measures implemented.

Inadequate preparedness to deal with emergencies leads to an increased risk of major consequences. For example, currently only about 0.1% of gas escapes lead to an explosion. Inadequate emergency preparedness would be expected to increase this proportion.

Inadequate training

Like retailers, transmission and distribution companies need documented procedures and trained staff to carry out tasks that have safety implications. Poor staff training increases the risk that safety will be compromised.

Summary of major risks associated with the retail supply of gas

The operations of gas retail companies create a range of risks to public safety, which are outlined below. The proposed regulations will address these risks by clarifying the scope of retailers' responsibilities and providing explicit linkages to the corresponding duties contained in the **Gas Safety Act 1997**.

Inadequate gas supply

Retailers are required to ensure they purchase sufficient gas to supply all of their customers and to minimize the possibility of supply interruptions due to lack of gas. Interruptions of gas supply have safety consequences in terms of the precautions that need to be taken upon reinstatement of supply. For example, air needs to be purged from gas installations and appliances before first being used after supply has been reinstated. If purging is not carried out properly, there is greater risk of an incident.

Supply of off-specification gas

Gas retailers are responsible for gas quality under the **Gas Safety Act 1997** and the Gas Safety (Gas Quality) Regulations 2007, with supporting guidance being provided in VENCorp gas quality guidelines and the relevant Australian Standards (AS 4564 and AS 4670). Safety cases submitted by gas retailers are required to demonstrate that appropriate arrangements have been made with suppliers for the supply of gas that meets quality requirements.

Supply of gas to an unsafe installation

Prior to connection of gas to a new installation, gas retailers are required to confirm that the relevant plumbing certificate of compliance has been lodged at the Plumbing Industry Commission. In the case of a complex gas installation, the retailer must obtain the plumber's licence number and the ESV Gasfitting Notice number before raising a service order with the relevant gas distribution

business. The distribution company then fits a meter after receiving gas supply approval from ESV. Safety cases submitted by gas retailers are required to ensure that relevant certifications and approvals have been provided prior to supply of gas to customers' installations.

Inadequate emergency preparedness

Gas retailers are the point of contact with their customers. If gas supply needs to be interrupted or temporarily discontinued, it is important that customers can be contacted quickly so that gas appliances can be shut down, particularly in the context of industrial gas installations. Safety cases submitted by gas retailers are required to set out an emergency response plan addressing all reasonably foreseeable emergencies.

Inadequate training and procedures

Gas retailers need to have documented procedures and trained staff for the carrying out of tasks that could impact on safety, eg. filling of LPG bottles prior to their supply to customers. Safety cases submitted by gas retailers are required to specify appropriate procedures ensuring the competence and training of staff.

2.2. The legislative context

2.2.1 General rationale for regulation

Both gas transmission and distribution companies and gas retailers face significant commercial and legal incentives to ensure that their operations are conducted safely. The following incentives can be identified:

- For gas asset owners/operators (i.e. transmission and distribution companies) the expectation that gas incidents will lead to significant damage to those assets provides a strong commercial incentive to ensure safe operations.
- For both transmission/distribution companies, the prospect of legal liability arising where their customers or third parties have suffered harm as a result of their operations – particularly if negligently conducted – provides incentives for safe operation.
- Reputational risk, in terms of the potential for safety concerns to negatively affect the ability of gas companies to market their services.
- The potential for prosecution for breaches of other relevant legislation, notably the Occupational Health and Safety Act (including, where relevant, the provisions of the OHS Regulations relating to Major Hazard Facilities) provides additional incentives for safe operation.

The importance of these incentives is recognised in the following sections of this RIS, where the estimated gross costs of preparing safety cases in

compliance with the regulations are discounted substantially to reflect the fact that, for many gas companies, a "business as usual" scenario would include safety case based approaches to ensuring safety.

In the above context, the size of the market failures likely to exist in relation to gas companies is, arguably, quite limited. However, the strategic importance of gas assets and the potential for major disruption to the economy and community in the event of a major gas incident arguably results in some potentially significant element market failure. That is, in the event of a major disruption to gas supplies, such as that which occurred following the explosion at Longford[6], major economic and social costs are likely to be incurred, many of which will not be effectively recoverable from gas asset owners.

Moreover, the strategic importance of gas assets and the potential for significant consequences as a result of a major incident also lead to strong community demands for government to take responsibility to oversee and regulate the operations of the industry in order to minimise the probability of harms. It is reasonable to argue that the public prefers a risk averse approach to be adopted where potentially major harms are concerned and that this degree of social preference for a risk averse approach exceeds that which is provided by simple commercial and legal imperatives of the type identified above.

A related consideration is that a strong approach to safety regulation was, and remains, a necessity to underpin public confidence following the privatisation of of the formerly government monopoly gas industry and the development of a competitive market. In this context, it can be noted that the government maintains strong regulatory positions in relation to the electricity, gas and water industries. In each case, there is a clear public demand that the government should have adequate regulatory powers to respond quickly and effectively in the event of poor practice by industry participants. Similarly, there is a strong expectation that government act proactively to ensure, with a high degree of certainty, that good practice is being followed by all industry participants in respect of all safety-related operations. This provides a strong underpinning rationale for the proposed regulations.

Finally, the adoption of safety case regulation is a requirement of the **Gas Safety Act 1997**. The proposed regulations set out the detail of a system of safety case regulation including, in particular, the specific matters to be included in safety cases. However, the primary legislation clearly requires such arrangements to be adopted by all gas companies.

2.2.2. Overview of the current regulatory context

Victoria currently regulates gas safety primarily through the **Gas Safety Act 1997** and the several sets of regulations made under its authority. This

[6] This example is illustrative only, as gas production facilities such as that at Longford are outside the scope of application of the proposed regulations.

legislation is administered by Energy Safe Victoria (ESV). The legislative structure was established concurrently with the disaggregation and privatisation of the former Gas and Fuel Corporation of Victoria (GFCV). As in most other former government monopoly infrastructure industries, there had not previously been a formal legislative structure governing safety performance. Rather, standards in this area were assessed internally by the vertically integrated government monopoly operator.

The Act establishes a non-prescriptive, outcome based safety regime to ensure that gas companies operate their assets and activities so as to minimise, as far as practicable, gas safety risks to the community. The Act establishes general duties[7] that must be complied with by all gas companies. The general duties can be seen as constituting the basic performance standard established under the Act. The various sets of regulations established under the authority of the Act are largely performance and process-based, rather than being prescriptive in character.

Section 37 of the Act requires each gas company to develop a safety case and submit the safety case to ESV for approval. The Gas Safety (Safety Case) Regulations 1999 set out the required contents of safety cases. In general terms, the purpose of a safety case is to set out how the gas company will go about complying with the general duties established under the Act. The basic structure of a safety case, in common with most or all examples of process-based regulation, incorporates the following elements:

- Risk identification;
- Risk assessment;
- Identification of risk control measures; and
- Identification of monitoring, record-keeping and review arrangements

Division 2 of Part 2 of the current 1999 regulations sets out the major elements that must be included in a safety case. These are:

- Identification of the person responsible for operating the facility;
- Identification of the person responsible for the safety case;
- A facility description, comprising an overview of the relevant facilities and operations;
- A Formal Safety Assessment setting out the methodology adopted in respect of risk identification, risk assessment and control measures;
- A Safety Management System which sets out the means by which risks are identified in the Formal Safety Assessment;
- Provisions relating to the reporting of gas incidents; and
- The address at which records are kept.

[7] Sections 32 – 36.

Similarly, Division 3 of the Regulations deals specifically with the essential requirements of a Safety Management System. These are:

- Identification of the company's safety policy;
- Description of the organisational structure and responsibilities;
- Identification of the published technical standards relied upon in relation to the gas facility;
- Identification of means used to ensure that the design, construction, installation,operation and modification of the facility meets safety requirements;
- The control systems used and safety critical machinery and equipment;
- A permit to work system for safety critical work;
- Emergency response plans and communications systems;
- Monitoring, auditing and reviewing arrangements;
- Key performance indicators;
- Training arrangements; and
- Record keeping systems.

The current safety case regulations were modelled on the federal regulations applying at that time to safety cases for offshore oil and gas platforms. The regulations were also explicitly designed to be compatible with other, similar safety case regimes. Gas safety legislation in all other States in which there is reticulated gas supply is also based on the application of a safety case requirement in respect of gas transmission and distribution companies. Victoria is the only state that applies a formal safety case requirement to gas retail companies. However, a number of other jurisdictions apply requirements such as the adoption of a "Safety Awareness Plan", which largely reflect the logic of the safety case approach[8].

In this context, attempting to maximise the degree of compatibility between similar legislative requirements is an essential means of minimising overall regulatory costs, by reducing inconsistency, duplication and overlap. This, in turn, was intended to facilitate the development of integrated health, safety and environmental management systems that satisfied the requirements of the various regulatory regimes.

The 1999 safety case regulations will sunset in 2009 as a result of the operation of the **Subordinate Legislation Act 1994**. The proposed regulations are intended to replace the 1999 regulations. In general terms, the proposed regulations are substantially similar to the 1999 regulations. However, a number of important changes are being proposed, which are discussed in more detail in the following section.

[8] These instruments are discussed further in Section 7.2, below.

In general terms, it can be argued that the existing regulations apply a one-size-fits-all approach to a diverse range of gas businesses, which include gas retailers. However, the regulations are not applicable to the gas retail function in a number of respects. Chiefly, ESV does not in practice require retailers to submit a formal safety assessment in respect of their retail activities, notwithstanding the requirement under the existing regulations for every safety case to contain a formal safety assessment.

Similarly, some existing requirements in relation to the content of safety management systems simply do not apply to gas retail activities, eg. a permit to work system. The proposed regulations address these issues by tailoring specific requirements to gas asset owners and gas retailers respectively. The limited number of gas retailers that also own or operate local supply networks will be required to comply with the more comprehensive requirements in respect of their networks but not in respect of their retail activities.

2.3. Specific issues addressed by the proposed regulations

In the course of preparing for the remaking of the 1999 regulations, ESV identified a range of specific issues for consideration. These were set out in a Discussion Paper release to stakeholders for consultation during July and August 2007. The major issues identified in the Discussion Paper were as follows:

Scope of operation of the regulations

The question of whether the regulations should be applied to the retail sector or be restricted to owners of gas supply assets was raised. It has been determined that non-asset owners should be subject to a separate regime to be established within the regulations, with this regime being somewhat less prescriptive than that to be applied to asset owners. For example, gas retailers will not be required to undertake a formal safety assessment.

Level of detail of the regulations

The question of whether the regulations should contain more detail on the required inclusions in the safety case, or less, was raised. In general, the proposed regulations will retain a similar level of detail as the current regulations. It should be noted that two Australian Standards exist (AS 2885 and AS 4568) which provide additional guidance on the development of safety cases in the gas industry context.

Person responsible for the operation of the facility

Clarification is proposed of the current regulatory requirement for the person responsible for the operation of a gas facility to be notified to the regulator.

Reporting of gas incidents

It was proposed in the Discussion Paper to combine three separate regulations relating to the reporting of gas incidents. However, a reporting provision needs to be retained in the safety management system requirements in order to comply with the formal requirements of section 37(2)(b)(i) of the **Gas Safety Act 1997**. Energy Safe Victoria proposes to modify reporting requirements by clarifying the nature of the gas incidents that need to be reported individually to Energy Safe Victoria as soon as practicable after they occur.

Gas incidents that are required to be individually reported to ESV are the more serious incidents involving a transmission pipeline and those that have resulted in death, injury, significant property damage or significant disruption to the community (eg. loss of supply to a hospital or evacuation of a city building or precinct due to gas escape or explosion). Where an incident needs to be individually reported, proposed regulation 40(4) specifies the particular matters that are to be included in the report. Otherwise, gas incident statistics can be reported in aggregated form every 3 months.

3. Objectives of the proposed regulations

The proposed regulations have the primary objective of minimising the incidence death and injury associated with the transmission, distribution and retail supply of gas. A secondary objective is to minimise the incidence of property damage and downstream losses due to gas incidents.

The regulations will contribute to the achievement of these objectives by ensuring that a systematic, management based approach is taken to the identification, assessment and control of risks and to emergency and incident response.

In this context, the specific objectives of the regulations, as set out in Regulation 1 are:

(a) to make provision for safety cases in relation to facilities, gas installations and appliances; and

(b) to provide for the reporting of gas incidents.

4. Nature of the proposed regulations and the proposed enforcement regime

This section summarises the substantive elements of the proposed regulations. A copy of the regulations is attached to this Regulatory Impact Statement (RIS) as Appendix 1.

4.1. Summary of the proposed regulations

The following provides a general summary of the substantive matters contained in the proposed regulations. A copy of the proposed regulations is attached as Appendix 1 to this document. Appendix 2 contains a summary of the major differences between the proposed regulations and the existing regulations.

4.1.1. Safety case

Part 2 of the regulations sets out the required content of a safety case. Regulations seven and eight require the person ultimately responsible for the operation of the facility and the person responsible for the preparation and submission of the safety case to be identified.

The safety case is required to contain the description of the facility to which it relates and a safety management system. The safety management system requirements differ for gas retailers and asset-operators. Unlike asset operators, the safety management systems of gas retailers are not required to include a formal safety assessment. Where a safety assessment is conducted, it must include details of the processes of risk identification, assessment and control undertaken. Because of this, it must list all hazards identified.

4.1.2. Safety management system (SMS) – transmission & distribution

Division 5 of Part 2 of the regulations sets out requirements in relation to the SMS for gas transmission and distribution companies. The following summarises the major elements:

The SMS is required to specify the company's safety policy and identify the person responsible for the policy, as well as the means by which the policy is to be communicated to those required to implement it. The SMS must also identify the responsibilities of different officers within the organisation for implementation of the safety policy.

All published technical standards being relied upon in the course of the design, construction, commissioning, installation, operation and decommissioning of

the facility must be identified, as must the means used to ensure that these processes are carried out safety and provide adequate control measures, as well as taking into account the results of the formal safety assessment of the facility.

A Permit to Work system must be established, specifying procedures for ensuring that any work requiring a permit is carried out by competent persons. Minimum levels of competency and training must be specified for such work. The SMS must also include an emergency response plan to ensure the safety of the public.

The SMS must specify monitoring, auditing and review processes in relation to the safety policies, objectives, procedures and performance standards specified in the SMS and must specify key performance indicators for the facility that will enable monitoring of compliance with the Act and regulations, as well as the applicable Safety Case.

Standards and management systems for incident reporting, investigation and review must also be specified.

4.1.3. Safety management system – retail

The SMS requirements for retail operations are substantially less extensive than those applied to transmission and distribution, recognising the significantly more limited nature of the risks entailed in retail operations. In particular, there is no requirement for a formal safety assessment (FSA) to be completed by gas retailers, in recognition of the fact that they do not own important gas assets. However, retailers will continue to be required to provide a facility description in relation to their functions and operations.

Key areas addressed in SMS for retail operations are the responsibility of retailers to ensure the quality of gas supplied[9], to ensure that they can meet all contractual obligations to supply gas, not to supply gas to an unsafe installation, to report all gas incidents and to have established emergency procedures.

4.1.4. Safety management system – gas retailers that own assets

In addition to their retail function, the following LPG companies own or operate small or localised gas supply networks:

Table 5: Gas retailers that own gas assets

Company	Details

[9] While this is formally the responsibility of gas retailers under the Act, in practical terms this is not within their control. Consequently, it is standard practice for retailers to contract with gas transmission/distribution companies to meet this obligation on their behalf.

Kleenheat Gas	Owns and operate a small LP Gas distribution network at Swan Hill
Buller Gas (managed by Indigo Shire Council)	Operates gas supply network that is owned by Mt Buller & Mt Stirling Alpine Resort Management Board and also retails to the alpine village at Mount Buller.
Mount Hotham Alpine Resort Management Board	Owns and operates gas supply network and also retails to alpine village, Mount Hotham
Elgas	Owns and operates gas supply network and also retails to Dinner Plain, Falls Creek and 2 reticulation systems in Phillip Island
Westernport Water and Gas	Owns and operates gas supply network and also retails to San Remo Golf Club.
TRUenergy	Sells gas to mass market and also operates Compressed Natural Gas (CNG) Facility.

Like the SMS for gas transmission and distribution companies, these companies are required to operate under an SMS that conforms to Part 2 Division 4 and 5 requirements in relation to their supply assets. However, their retail function is only required to comply with the Part 2 requirements applying to retailers.

4.1.5. Safety case for installations and appliances

Part 3 of the regulations sets out requirements for safety cases for gas installations and appliances. Part 3 distinguishes three different kinds of installations and appliances, consistent with sections 52 to 54 of the Act. These are complex gas installations in manufacturing or industrial premises (section 52), the supply and installation of Type B gas appliances in manufacturing and industrial premises (section 53) and the manufacture of complex gas installations (section 54).

In each case, the relevant safety case must be consistent with the requirements of Part 2 of the regulations. Part 3 specifically notes that Divisions 4, 5 and 6 of Part 2, relating to safety case content, specification of the safety management system and record-keeping requirements, should be read in a manner that substitutes “complex gas installations”, “Type B appliances”, or “manufacture of the complex gas installations”, as appropriate, for “gas facilities”[10].

4.1.6. Reporting of gas incidents

[10] Part 3 safety cases may be submitted on a voluntary basis by entities that are not gas companies. Part 2 is reserved for gas companies, for whom submission of a safety case is mandatory under section 37 of the Gas Safety Act 1997. Currently there is only one company operating under a Part 3 safety case: Bluescope Steel.

Part 4 of the regulations establishes requirements for the reporting of gas incidents. Certain gas incidents (as defined in proposed regulation 40(1)) must be reported as soon as practicable after occurrence, while other gas incidents must be reported in the form of a statistical summary on a quarterly basis.

The regulations specify the information that must be contained in a report on a gas incident, including the nature and cause of the incident, whether the emergency services attended and what remedial actions were taken.

4.2. Explanation of the expected impact of the regulations

As at 1 April 2008, 36 companies have had safety cases approved under the **Gas Safety Act 1997**. These are as follows:

Table 6: natural gas transmission and distribution companies

VENCorp	APA Group - GasNet
Gas Pipelines Victoria	International Power Mitsui
Santos (Patricia Baleen)	SEA Gas
Origin Energy Resources (Bass Gas)	SESA Pipeline
Babcock Brown Infrastructure (BBI) (Tasmanian Gas Pipeline)	Singapore Power International (SPI) (Eastern Gas Pipeline)
BBI/Multinet Gas	APA/Envestra
SPI Networks (incl Mt Baw Baw LP Gas reticulation)	

Table 7: natural gas retail companies

TRUEnergy Australia	Origin Energy Retail
AGL Victoria	ExxonMobil Gas and Power Marketing
Santos Direct	Victoria Electricity
Simply Energy	Red Energy
Australian Power and Gas	Dodo Power and Gas

Table 8: LPG retail companies

Elgas (x 2)	Origin Energy LPG
Powergas	United Gas
Supagas	Wesfarmers Kleenheat Gas
Westernport Water and Gas	Indigo Shire Council (Buller Gas)
Mt Hotham Alpine Resort Management Board	

Table 9: Landfill gas distribution companies

Energy Developments Ltd	City of Whittlesea

Table 10: Other safety case operators that are not gas companies

Bluescope Steel	

The scope of the proposed regulations will be unchanged from that of the existing regulations. Hence, these same 36 gas companies will be subject to the proposed regulations, as will any new entrants to the gas transmission, distribution or retail sectors.

However, the gas companies with existing safety cases will get the benefit of transitional provisions, with the result that they will not be required to re-submit their safety cases merely by reason of the commencement of the proposed regulations in January 2009. Gas companies whose safety cases are revised and re-submitted after commencement will be required to comply with the new regulations. Gas retail businesses will receive the benefit of the simplified requirements applying to their retail function.

5. Expected costs of the proposed regulations

5.1. Overview

The following cost estimates attempt to identify two separate conceptions of the cost of the proposed regulations. First, they attempt to estimate the full cost of developing and implementing a safety case in the form specified by the regulations. Second, they incorporate an estimate of the proportion of these total costs that can be considered to be additional to the likely "business as usual" arrangements that would apply in the industry in the absence of formal regulatory requirements. This second approach attempts to identify the actual incremental costs that are conceptually reasonably attributable to the regulations.

It should be noted that the general requirement to prepare and implement a safety case is formally established in the **Gas Safety Act 1997**. Consequently, even in the absence of regulations, gas companies would be required to prepare safety cases. In this situation, however, there would be little in the way of explicit requirements as to the content of these safety cases. Thus, the safety cases that would actually be adopted would reflect the "business as usual" approach. The incremental cost of the safety cases that is estimated below is thus measured against this "base case" scenario.

Three broad categories of costs can be identified in association with the proposed regulations. First, there are the direct costs to gas companies of developing, documenting and reviewing gas safety cases. Second, there are the substantive compliance costs associated with the adoption of safety cases: that is, the costs of additional safety-related expenditures that are undertaken as a result of the risk management approaches implemented via the safety case. Third, there are the costs to ESV associated with the administration and enforcement of the regulations. These costs are considered in turn below.

5.2. Cost estimation methodology

Cost estimates in relation to the regulations were developed as the result of an extensive process of consultation with gas companies in the distribution and retail sectors. The following steps were undertaken.

1. Questionnaires

Questionnaires on the costs of compliance with the regulations were developed in conjunction with Energy Safe Victoria. The questionnaire layout followed that of the proposed regulations and, in broad terms, reflects the Standard Cost Model methodology used to estimate administrative burdens. That is, the questionnaire asks respondents to provide detail on the cost of compliance with

each substantive provision of the proposed regulations. Responses were requested in terms of the time taken to undertake compliance activities (or dollar cost, where external resources were used) and the frequency with which compliance activity was required to be undertaken.

The questionnaire also asks respondents to estimate any change in expected compliance requirements, comparing the existing Gas Safety (Safety Case) Regulations 1999 with the proposed regulations. Finally, the questionnaire includes space for comments to be entered in relation to each substantive regulatory requirement. Several general comments sections are also included.

The draft questionnaire was reviewed by VCEC and modifications made in response to VCEC feedback. The questionnaire document included a range of introductory material explaining the purpose of the questionnaire and providing guidance on its completion.

2. Mail-out of questionnaires

Copies of the questionnaire were sent by e-mail to a total of 12 gas companies operating in both the transmission/distribution and retail sectors. A covering document explained the purpose of the data collection exercise and requested their participation. The mailout was followed up by telephone contact to arrange face to face interviews. Participants were requested to attempt to complete the questionnaire prior to the interview and to modify the questionnaire as required after interview. Final questionnaires were then obtained from participants within approximately one week of each interview.

3. Interviews and questionnaire responses

A total of eight interviews were conducted, with questioning focused on the matters highlighted in the questionnaire. Interviews were conducted with five gas retailers and three transmission and distribution businesses. Questionnaire responses were received from six gas companies, four retailers and two gas transmission and distribution businesses.

Qualitative overview of interview data collected

Interviewees were generally of the opinion that the compliance obligations established by the regulations were broadly reflective of what would constitute "business as usual" requirements in the absence of specific regulation. That is, it was generally believed that a safety case approach would be taken by all or most gas companies, even in the absence of specific regulation. In a small number of cases, direct evidence of this was provided. For example, one respondent noted that they had developed a safety case model, based on an industry standard, prior to the commencement of the current regulations. One comment was that the oil industry had pioneered the safety case approach following the Piper Alpha disaster and that the model developed in that context had been largely adopted by the gas company in question.

A small number of respondents noted that they had used significant consultant inputs in developing their safety cases and commented that relatively limited staff learning had occurred as a result. A second consequence of this approach that was highlighted was that the safety case was initially somewhat separated from actual business processes when initially adopted. This had led to a deliberate choice to commit more internal resources to the revision of the safety case and the ultimate achievement of a better integration of the formal safety case with actual business processes in the medium term. More broadly, the point was made by several respondents that safety cases tended to become better integrated with business processes over time, regardless of the specific circumstances of their initial adoption.

A corollary of the above observations is that, while the gross cost of compliance with safety case regulation may be relatively high, for most gas companies, the net costs of compliance are very much smaller. Moreover, these costs are likely to decline over time for a given gas company as they more effectively integrate the safety case approach with their day to day business operations.

The only specific area identified by a number of gas companies[11] as being one in which the safety case regulations tend to increase substantively the costs of conducting "business as usual" was that of audit requirements. Some respondents considered the frequency and/or extent of required audit activity to be greater than that which they would be likely to choose to undertake voluntarily. That said, respondents generally agreed that audits "add value" to gas companies as they identify areas for improvement within individual businesses, particularly due to their characteristic of bringing an external perspective to bear on safety management issues. ESV agrees with this view, believing that this added value to both the gas companies concerned and the wider community is larger in magnitude than the additional costs of greater audit activity. The views expressed by gas companies during the consultation process did not indicate any clear disagreement with this point.

5.3. Cost estimates – gas retailers

A total of four completed questionnaires were received from gas retailers. The cost estimates contained in these questionnaire responses can be summarised as follows:

Company A

The cost of the initial development of a gas safety case in accordance with the requirements of the proposed regulations was estimated at $6,100 in payments to external providers, plus 53 hours of internal staff time.

[11] One gas company also suggested that the regulatory requirements meant that their emergency management plan was substantially better than would otherwise have been the case. While this was seen as increasing costs, the associated benefits were believed to more than offset this cost increase.

Company B

The cost of the initial development of a safety case was estimated at approximately 0.4 FTE[12].

Company C

The cost of conducting a five yearly review of an existing safety case was estimated that approximately 0.75 FTE.

Company D

The cost of the initial development of a safety case was estimated at approximately 2.0 FTE.

Review of the questionnaire responses led to the response from company A being discarded as being an outlying result, them compared with the remaining three responses. The response from company C was doubled from 0.75 FTE to 1.5 FTE to provide an estimate of the cost of initial development of a gas safety case that would be comparable with the remaining responses. The decision to double the estimated time input for conducting a five yearly review of a safety case was based upon the interview discussions undertaken, during which a number of respondents suggested that the task of initial development of a gas safety case was approximately twice as resource intensive as that of conducting a five yearly review.

Given this adjustment, the three remaining estimates of the cost of initial preparation of a gas safety case are 0.4 FTE, 1.5 FTE and 2.0 FTE respectively. A simple average of these three estimates was taken, yielding a base case estimate of 1.3 FTE as the average cost of initial preparation of a gas safety case for gas retail companies.

Consistent with feedback received during interviews with gas companies, it is assumed that the resources required to complete five-yearly major reviews of the safety cases are equal to half of the initial development cost, or an average of 0.65 FTE.

Questionnaire responses indicated that the great majority of development work on safety cases is completed internally by gas retail companies, rather than through the use of external consultants. Several commented that the tasks involved required relatively high-level staff inputs. Thus, it was not considered appropriate to adopt the VCEC guideline approach of Average Weekly Earnings as a basis for estimating the cost of staff time devoted to the development of safety cases.

Only one gas retailer nominated a specific average hourly cost figure in the context of its questionnaire response. This was $160 per hour, comprising $80

[12] FTE = Full Time Equivalent staff members. i.e. 0.4 person years of staff time.

in direct salary costs and a 100% allowance for overheads and on-costs. The figure of $80 represents approximately 150% of average adult hourly full-time earnings and has been accepted as a plausible estimate of average hourly costs. The 100% allowances for overheads (including non-wage labour costs) is regarded as being within the range of commonly used estimates and, given that it refers to the actual experience of a gas company participant, is used in the subsequent cost calculations in preference to the VCEC "guideline" figure of 75%.

Using an estimated 220 working days per annum of 7.6 hours average duration, the estimated number of hours involved in safety case preparation and review are as follows:

- Initial preparation: 220 x 7.6 x 1.3FTE = 2,173.6 hours
- Five-yearly review: 220 x 7.6 x 0.65FTE = 1,086.8 hours

Table 11: Average cost of safety case development and review – gas retailers[13]

Task	Hours	Rate	Cost
Initial preparation	2,173.6	$160	$347,776
Five-yearly review	1,086.8	$160	$173,888
Present value over 10 years[14]			$605,697

Table 11 shows that the present value of the average cost of compliance with the regulatory requirements over 10 years for gas transmission and distribution companies is estimated at $605,697. However, it was noted in the course of the interviews conducted that the cost to prepare a retail safety case is considerably lower if the company has experienced staff, as has been the case with one recent entrant to the gas retail business. Conversely, in another case the costs were very much higher as a consultant was used.

Estimation of the total cost of the regulations for retailers over the next ten years requires an estimate to be made of the number of new entrants to the sector over this period. This reflects the fact that all existing operators currently have safety cases in place, so that only new entrants will need to undertake the initial preparation of a safety case. For existing operators, the impact of the

[13] These costings and the equivalent costings for gas transmission/distribution companies set out in Table 12 relate specifically to new entrants to the industry. By contrast, the aggregate cost estimates presented subsequently incorporate estimates of both the costs to incumbent gas companies and those of expected new entrants.

[14] Present value calculated using a discount rate of 3.5% as per VCEC advice. The calculated figure effectively relates to a new entrant. Thus, it is based on the full cost of preparing a new safety case being incurred in year 1 and the 5 yearly review cost being incurred in year 6. The same approach is adopted with respect to the costs to an asset owning firm, as presented in Table 12, below.

regulations will be that they will continue to be required to undertake five-yearly reviews of their existing safety cases.

5.4. Cost estimates – asset owners

Only two completed questionnaires were received from gas asset owners. However, these two responses provided broadly consistent estimates of the cost of preparing a gas safety case: one response estimated the total cost at 0.6 FTE and the other at 0.8 FTE. Given the similarity in these responses, an average cost of 0.7 FTE has been adopted as the estimated average cost of preparation of a gas safety case for asset owners.

The same hourly labour costs have been used as for gas retailers to obtain estimates of the costs of preparing and updating gas safety cases. Again using an estimated 220 working days per annum, of 7.6 hours average duration, the estimated number of hours involved in safety case preparation and review are as follows:

- Initial preparation: 220 x 7.6 x 0.7FTE = 1,170.4 hours
- Five-yearly review: 220 x 7.6 x 0.35FTE = 585.2 hours

Table 12: Average cost of safety case development and review – gas transmission/distribution companies

Task	Hours	Rate	Cost
Initial preparation	1,170.4	$160	$187,264
Five-yearly review	580.2	$160	$93,632
Present value over 10 years[15]			$326,145

Table 12 shows that the present value of the average cost of compliance with the regulatory requirements over 10 years for gas transmission and distribution companies is estimated at $326,145.

Box 1: Reconciling the cost estimates

According to the above estimates, based on questionnaire responses from a range of gas companies, the average cost of preparing an initial safety case is almost twice as great for gas retailers as for gas transmission and distribution companies. This appears to be a counter-intuitive outcome, since the major gas related risks inevitably

[15] Present value calculated using a discount rate of 3.5% as per VCEC advice. The calculated figure effectively relates to a new entrant. Thus, it is based on the full cost of preparing a new safety case being incurred in year 1 and the 5 yearly review cost being incurred in year 6.

relate to gas assets and, consequently, fall within the responsibility of gas asset owners, rather than retailers.

A number of factors provide a plausible explanation for this observation. First, the gas asset operators who provided data have substantial experience in operating under a safety case regime, whereas a number of the gas retailers who provided data have relatively little experience in the industry and with the operation of safety case based regulation. Second, gas asset operators indicated that the safety case model tended largely to reflect their standard business practices, so that the formal development of a safety case which met regulatory requirements was a task with which they were already broadly familiar. Third Australian Standards exist which can be used to guide the development of gas safety cases by gas asset operators, whereas no equivalent standards exist to guide gas retailers. The existence of such a guide is likely to reduce substantially the costs of development of the safety case.

This issue was highlighted in the 2007 Discussion Paper published by ESV to obtain stakeholder feedback as part of the review of the existing Gas (Safety Case) Regulations 1999. The Discussion Paper states:

The implementation of the current regulations and the development of safety cases for natural gas transmission and distribution companies has been relatively straightforward. This is primarily because these companies are asset operators and the application of a regime originally developed to ensure the safe operation of hydrocarbon production facilities is a "natural fit". For these companies, the identification of appropriate safety controls is relatively straightforward and has been documented in various codes including AS 2885[16] and AS 4568[17].

The implementation process for natural gas and LPG retail companies has been less straightforward because their primary "facility" is a service rather than a physical asset such as a gas network. For these companies the identification of appropriate safety controls is correspondingly less straightforward. The development of non-asset safety cases has been successfully facilitated in practice by the provision of written guidance material and by discussion between companies and ESV to assist with the identification of appropriate safety controls

Given these factors, it is believed that the relative costs reflected in the questionnaire responses received plausibly reflect the actual experience of gas operators in the two sub-sectors in achieving compliance with their regulatory obligations. Consequently, no further adjustments to the costings provided in the questionnaire responses have been undertaken.

5.5. Modelling total costs to gas companies

As noted in Section 3, there are currently 36 gas companies operating under the Gas Safety (Safety Case) Regulations, with all 36 expected to remain regulated under the proposed replacement regulations. Of these 36 companies, 13 are involved in gas transmission and distribution, 20 are

[16] AS 2885 Pipelines gas and liquid petroleum
[17] AS 4568 Code of Practice for the Preparation of a Safety and Operating Plan for Gas Networks

involved in retailing (10 LPG and 10 natural gas) and 3 are involved in other gas-related activities[18]. In the absence of any specific information on the safety case-related costs of these three other gas companies, a conservative approach has been adopted by assuming that their costs are equivalent to those of gas retailers (cf the lower costs incurred on average by transmission/distribution companies).

ESV data show that there has been one new entrant to the transmission and distribution sector over the last 3 years and nine new entrants to the retail sector. By contrast, in the previous three year period (i.e. 2002 – 2004) there were three entrants to the transmission and distribution sector and two entrants to the retail sector. This demonstrates that the rate of entry to the industry is highly irregular.

Based on this data and the views of ESV staff on possible future developments in the industry, the modelling of the costs has been undertaken on the assumption that there will be on average one new retail business established each year and one new transmission or distribution business every three years on average. These businesses will be required to establish a gas safety case from first principles. For incumbent businesses, their obligations will be to conduct five yearly major reviews of their existing gas safety cases. The timing of these reviews has been modelled using ESV data on the dates on which safety cases were originally approved for each company.

Based on these assumptions, the following compliance costs have been calculated over the expected ten year life of the proposed regulations.

Table 13: Compliance costs for gas companies[19]

Year	Retailers	Transmission/distn	Total
2009	$1,043,328	$374,528	$1,417,856
2010	$1,564,992	$280,896	$1,845,888
2011	$1,043,328	$93,632	$1,136,960
2012	$1,043,328	$187,264	$1,230,592
2013	$1,217,216	$655,424	$1,872,640
2014	$1,217,216	$280,896	$1,498,112
2015	$1,738,880	$468,160	$2,207,040
2016	$1,217,216	$93,632	$1,310,848
2017	$1,217,216	$93,632	$1,310,848
2018	$1,391,104	$842,688	$2,233,792
Total (present value)	**$10,504,675**	**$2,757,254**	**$13,261,929**

[18] These 3 companies involved in other gas-related activities are the City of Whittlesea, which uses landfill gas from the local tip to heat the municipal swimming pool; Energy Developments Ltd which uses landfill gas to generate electricity which is then sold into the grid; and Bluescope Steel. However, the latter is not a gas company. Rather, it is a large industrial gas customer that has chosen to submit a voluntary safety case.

[19] Refer to Appendix 2 for detailed calculations.

Table 13 shows that the present value of the expected costs of compliance with the proposed regulations is $13.3 million over 10 years, with $10.5 million of these costs being incurred by retail companies[20] and $2.8 million being incurred by transmission and distribution companies.

Costs occurred due to changes in gas company ownership

In recent years there have been numerous changes of ownership and company re-structures, reflecting corporate merger and take-over activity in the gas industry. In most cases of change of ownership ESV does not require the company concerned to formally revise its safety case. Instead, new pages may be sent to ESV for insertion into the safety case, with the old pages being taken out. Where a more thoroughgoing review of the safety case is undertaken in such circumstances, ESV believes that this occurs as part of normal business processes and that the costs involved are not appropriately attributed to the regulations. The incremental cost of notifying ESV in such cases amounts to writing a letter and enclosing a copy of the updated SC and is considered to be trivial. Consequently, no cost estimates have been included in respect of changes to safety cases due to changes in gas company ownership.

However, it must be emphasised that these costs constitute the gross costs of developing, implementing and updating gas safety cases. The gas companies consulted prior to the preparation of these cost estimates consistently agreed that the majority of these costs would continue to be incurred by them in the absence of specific safety case regulations, as they had formed the view that sound business practices require the majority of these tasks to be undertaken. While no specific estimates were given as to the extent to which the existence of the specific regulatory requirements increased these costs, it is considered unlikely, based on the extensive discussions with gas companies undertaken as part of the consultation process leading to the preparation of this RIS, that the need to costs of the proposed safety case regulations are greater than 25% of the gross costs estimated above. That is, the net costs of the proposed regulations to gas companies are considered to be unlikely to exceed $3.3 million in present value terms over 10 years.

5.6. Substantive compliance costs

The costs estimated above are those of the designing, implementing and reviewing safety cases as required under the proposed regulations. These can be considered to be the "administrative costs" associated with the proposed regulations. However, the underlying purpose of safety case regulations is to ensure that regulated parties adopt systematic approaches to identifying, assessing and controlling risks to levels that are as low as reasonably practicable. Implementing these risk controls necessarily involves substantive compliance costs.

[20] The three companies listed in the “other” category in Section 3 have been included in the retail category.

For retailers, the major substantive costs involved are those that relate to their major duties, as identified in section 4.1.3: to ensure the quality of gas supplied, to ensure that they can meet all contractual obligations to supply gas, not to supply gas to an unsafe installation, to report all gas incidents and to have established emergency procedures.

For asset managers the substantive costs associated with the regulations are, conceptually, all safety related maintenance costs[21] in excess of what would be undertaken by a prudent asset manager to maximise the long-term value associated with the asset and to meet their general legal obligations. The quantum of these costs will be substantially dependent on how the safety case regulations are administered and interpreted in practice. They will also be related to the nature of the gas assets involved, in terms of age profile, location and the like.

It is clearly not feasible to estimate these costs quantitatively. It must be noted that the size of the maintenance programs to be undertaken in relation to gas assets is the subject of periodic negotiation with the economic regulator, the Essential Services Commission. As a number of gas companies noted, in consultations conducted prior to this RIS, there is considerable uncertainty as to the "optimum" maintenance schedules in relation to many aspects of gas assets. This, combined with the question of the attributability of these costs, highlighted above, underlines the problem of assessing the magnitude of the substantive costs of the safety case regulations.

However, substantial consultation has indicated that gas companies are generally supportive of the proposed regulations and do not believe that they impose large additional costs on them beyond what good business practice would require.

5.7. Costs to ESV

There are four main areas of work which ESV undertakes in relation to gas safety cases. These are initial review and acceptance, review of five yearly updates and reviews, auditing of safety cases and Gas Company Action Requests.

Three Gas Safety Advisors each spend approximately 50% of their time on these activities. In addition, one further staff member devotes about 30% of their time to related tasks. Thus, staffing allocated to tasks associated with these regulations amounts to approximately 1.8 EFT on average[22]. The average salary of the relevant staff is $90,000 p.a. Thus, direct salary costs in respect of activities related to the proposed regulations are:

[21] This would also include the incremental costs in bringing forward asset replacement, for example.
[22] There is potentially some variation around this average, due to the pattern of new safety cases being submitted and reviews of existing safety cases being conducted.

$90,000 x 1.8 = $162,000

A standard multiplier of 100% is added to this figure to account for labour on-costs, operating expenses and corporate overheads. Thus, the total annual cost to ESV of administering and enforcing the regulations is expected to average $324,000. This is equivalent to $2.7 million over the ten year life of the regulations, in present value terms.

6. Expected benefits of the proposed regulations

6.1. Overview: benefits of regulating gas safety

Generally speaking, the benefits of effectively regulating gas safety include the following:

1. Reductions in fatalities and injuries due to gas incidents
2. Reductions in property damage due to gas incidents
3. Reductions in supply interruptions due to gas incidents

The nature and extent of these benefits are discussed in turn in the following sections.

6.1.1. Reductions in fatalities and injuries

The 2004 OGS review of Victorian gas safety performance by comparison with a number of international benchmarks found evidence that the safety performance of the Victorian gas distribution system was comparatively good, but was unable to draw conclusions regarding the relative safety performance of the Victorian gas transmission system. The major reason for this inability to draw conclusions regarding relative safety performance was, as stated above, the relatively small scale of gas transmission operations in Victoria. In highlighting this comparatively small scale, the report noted:

> *Over the ten year period, 21,000 km-year of transmission pipeline and 262,000 km-year of distribution pipeline were recorded, compared with US statistics of 4.79 million and 16.62 million km-years respectively. (p 12).*

These small-scale operations combine with the low frequency of gas incidents make estimation of the expected number of fatalities and/or injuries extremely difficult.

A necessary corollary of this statistical observation is that it is extremely difficult to estimate qualitatively the actual or potential benefits of gas safety regulation in reducing fatalities and injuries. Within this context, it is clear that quantitative estimation of the potential benefits of implementing specific regulatory changes is impossible.

However, some indication of the size of the impact of a sound regulatory structure in reducing fatalities can be obtained from the 2004 review. The review noted that, based on incident rates observed in the United States, the expected number of fatalities in the Victorian gas distribution system over the previous 30 years would be five, whereas zero fatalities were actually observed

over this period. The review also published tables providing expected and actual incident rates and consequences, as follows:

Table 14: Predicted and actual gas incidents & consequences[23]

	Predicted	Actual
Transmission:		
Incidents	3.32	14
Leaks	4.25	4
Injuries	0.45	0
Fatalities	0.11	0
Distribution:		
Incidents	10.57	128
Injuries	6.11	5
Fatalities	1.59	0

As noted above, the relatively small scale of gas supply operations in Victoria, combined with the relatively low frequency of fatalities and injuries in connection with gas supplier, combined to yield substantial uncertainty as to the actual safety performance of the industry in Victoria. However, the above data predicting the expected number of fatalities and injuries in Victoria, based on the equivalent safety performance to that achieved in the United States can be used to provide an indication of the scale of the benefits that can be obtained through improvements to gas safety performance.

As shown in table 13, the expected number of fatalities on this basis is equal to 1.7 (i.e. 0.11 + 1.59) every 10 years, while the expected number of injuries is equal to 6.56 every 10 years. Thus, for every 10% improvement in gas safety performance from this base, it be expected that an additional 0.17 fatalities could be averted every 10 years while an additional 0.656 injuries also be averted every 10 years.

These potential benefits can be converted into dollar terms by using appropriate valuations of a statistical life (VSL). A recent analysis of the academic literature on VSL[24] concluded that an appropriate VSL for use in Australian policy-making contexts was $6.0 million. While this source does not include an equivalent estimate of the value of an injury, other literature[25] suggests values in the range of 0.20 to 0.23 times the estimated VSL. If a slightly conservative estimate of 0.20 times the estimated VSL is adopted, then the potential benefit in terms of the value of expected fatalities and injuries avoided for every 10% reduction in risk in relation to gas supply would be equal to:

[23] Data for 10 years to 2003.
[24] Access Economics (2008). *The Health of Nations: the Value of a Statistical Life.* Report prepared for the Office of the Australian Safety and Compensation Council
[25] Soby, BA., Ball, DJ. & Ives, DP. (1993). *Safety Investment and the Value of Life and Injury.* Risk Analysis, Vol. 13, No. 3, June 1993, pp 365-370.

(0.17 x $6.0 million) + (0.656 x 0.20 x $6.0 million) = $1.81 million per 10 years in present value terms.

6.1.2. Reductions in property damage and supply interruptions

While the reduced fatalities, injuries and property damage constitute the most visible benefits of safety regulation in this area, the economic benefits of reduced supply interruptions due to fewer gas incidents are extremely substantial. For example, the Royal Commission that investigated the Longford gas explosion found that the cost of the Victorian economy of the interruption to gas supply consequent upon that incident was in the vicinity of $1.3 billion.

A significant part of the benefits due to reduced gas incidents will accrue to regulated parties. In addition to avoiding damage to their own assets, gas companies obtain benefits through reduced compensation payments to customers and others who suffer property damage as a result of gas incidents affecting their assets. For example, the operators of the Longford plant required to pay compensation exceeding $32 million to those who had suffered property damage as a result of the explosion. Similarly, Texas Eastern Transmission Corporation paid approximately US$65 million in compensation following a rupture and fire in one of its transmission pipelines which occurred in 1994.

Unplanned gas supply interruptions exceeding 12 hours in length trigger obligations to pay compensation to consumers. Around 250 such interruptions occur annually in Victoria, with payments to customers totalling $18,900 in 2006/07. However, the larger part of the cost arising from incidents involving supply interruptions is that of repairing the damage to the system. These costs, borne by the distribution business, are estimated to average $800 per occurrence and totalled $2.88 million in 2006/07.

The average number of incidences of damage to gas mains and services in Victoria is 3,600 per annum. These incidences most frequently result from damage to gas assets caused by “third parties”. For example, a common scenario is one in which excavation plant or equipment (eg. a backhoe) makes inadvertent contact with an underground transmission or distribution pipeline during construction work.

6.2. Benefits due to changes to existing regulatory arrangements

Bowling summarises the benefits expected to be attained as a result of the specific changes being made to existing regulatory arrangements via the adoption of the proposed regulations.

6.2.1. Distinguishing between compliance obligations of asset operating gas companies and gas retailers

In contrast to the current regulations, the proposed regulations will distinguish between the operations of gas retailers and those of asset operating gas companies. Divisions two and three of the regulations specify the required continent of a safety case end of a safety management system respectively for gas retail companies. Division four and division five specify the equivalent requirements for asset operating gas companies.

The major change from the existing regulatory requirements in respect of the safety case is that gas retailers will no longer be required to conduct a formal safety assessment. This is expected to result in a reduction in regulatory burden for gas retailers.

The rationale for not requiring the retailer to complete a formal safety assessment is that these businesses are seen by ESV as being low risk and hence not requiring the same degree of detail and rigour in relation to safety case content as is required of gas transmitters, distribution and LP Gas reticulation companies. In addition, it can be noted that the operations of retail companies are essentially similar in nature and that the nature of the risks involved in gas retail operations is well known to the industry.

7. Identification and assessment of feasible alternatives

The use of a safety case based approach to regulating gas transmission and distribution is widely considered a best practice. This approach is adopted in all Australian States and Territories in which reticulated gas is provided. That said, jurisdictions do differ as to whether safety case requirements are applied to gas retailers.

The **Gas Safety Act 1997** (specifically, section 37) requires all gas companies to submit a gas safety case to ESV. The Act also specifies a number of specific requirements in relation to the safety case. Given these requirements of the primary legislation, all feasible alternatives to the proposed regulations must be developed in the context of the legislative requirement for safety cases to be adopted.

Within this context, two feasible alternatives have been identified. The first, raised for discussion in the Discussion Paper released by ESV for consultation purposes in 2007 was the adoption of greater or lesser degrees of regulatory prescription as to the required contents of a safety case. On one view, this constitutes two separate alternatives – i.e. the adoption of greater prescription, or of lesser prescription. However, the arguments for and against such an approach are effectively mirror images of each other. Given this, the question of the appropriate degree of regulatory prescription in relation to safety cases is considered in generic terms below.

The second alternative considered is to limit the scope of the safety case requirement to asset owners; that is, to exclude gas retailers from the need to prepare and implement a complying gas safety case.

7.1. Adoption of greater degree of prescription in safety case requirements

7.1.1. Benefits of a higher level of prescription

The 2007 Discussion Paper identified three major advantages of adopting by higher level of regulatory prescription as to the required contents of safety cases, as follows:

- it increases the legal certainty for gas companies as to what constitutes a complying safety case,
- it reduces the reliance on the personal judgement of individual safety case assessors, and
- it increases the transparency of the safety case process.

All three of these identified advantages can be considered to be generic in nature, in that they can be cited in support of more prescriptive regulatory approaches in virtually any context. In order to determine the relative importance of each of these potential benefits in the specific context of the gas safety case regulations it is necessary to consider should issue in the context of the specific characteristics of the gas industry.

Increased certainty for gas companies

Difficulties in relation to certainty of compliance with non-prescriptive regulatory requirements are frequently highlighted as being of concern, in particular, to small businesses, which will frequently lack the dedicated technical resources that may be required in order to develop a specific regulatory compliance programme tailored to the operations of an individual business. More generally, where there is little experience with compliance with the regulatory regime in question, concerns over ensuring certainty of compliance with non prescriptive regulation may also be significant.

However, these circumstances clearly do not apply to gas companies in Victoria in the current regulatory context. In the first instance, gas companies that are required to comply with the safety case regulations are, in most cases, large and sophisticated operations that are well-placed to develop complying safety cases with limited guidance from the regulator. This will particularly be the case in relation to gas asset owners. However, even in the case of gas retailers who may be new entrants to the industry, access to expert external advice is unproblematic.

Secondly, there is substantial industry experience in complying with the existing regulations, which have been in operation for almost 10 years. Given that the proposed regulations will differ to only a relatively small degree from the existing regulations, this implies that gas companies will remain well-placed to comply with their regulatory obligations without substantial additional prescription being implemented.

Thirdly, it has been noted elsewhere that the requirements of the safety case regulations are largely reflective of the internal business processes adopted in the majority of companies operating in the gas industry. This, again, suggests that there would be little, if any, benefit in increasing the degree of a prescription contained in the safety case regulations.

Reduced reliance on the personal judgement of individual safety case assessors

The potential benefit of reduced reliance on the individual judgement of assessors essentially lies in the reduction of the potential that may exist for the regulations to be applied in an arbitrary and/or inconsistent fashion. However, consultation undertaken with a gas companies indicates that there has, during the 10 years in which the existing gas safety case regulations have been in force, been little concern in this regard.

The existence of Australian Standards for the development of safety cases in this context is also particularly relevant, as it provides an authoritative background against which any disputes of this kind could be assessed and resolved.

Increased transparency

Increased transparency can be of substantial importance particularly where there are public concerns regarding regulatory compliance and, consequently, the achievement of safety standards. In this context, improving transparency as to the processes of assessing compliance can increase confidence for the public and industry customers.

Transparency may also be important from the point of view of industry participants if there are strong concerns regarding the equity of treatment of different players by regulatory authorities.

However, neither of the above issues is believed to be substantial in the context of the gas industry in Victoria at present. The general public perception is of strong safety performance in the gas industry, notwithstanding the Longford incident of 1998[26]. Moreover, consultation reveals no concerns among industry participants in relation to equity of treatment by regulatory authorities.

7.1.2. Costs of a higher level of prescription

The 2007 Discussion Paper identified the following disadvantages of adopting a higher level of prescriptive detail regarding safety cases in the regulations:

- it reduces the flexibility of companies in the development of safety cases,
- it reduces the opportunity for harmonisation of requirements across jurisdictions,
- it can tend to stifle innovation in safety management systems,
- it can tend to foster a “cook book” or “cut and paste” approach to safety case development,
- it can be perceived as running counter to the philosophy of an outcome based regime,
- it can tend to increase compliance costs and
- it can be difficult to design regulations that are universally appropriate given the diverse nature and size of Victorian gas companies.

[26] Note that this explosion, which caused two fatalities and eight injuries, occurred at a gas processing plant, which does not constitute part of the gas transmission or distribution systems and hence falls outside the scope of the proposed regulations.

Reduced flexibility/increased compliance costs

Reduced flexibility in the development of safety cases, as a result of the need to meet more detailed, prescriptive regulatory requirements, has the potential to substantially increase the cost of regulatory compliance. This will occur to the extent that the specific prescriptive requirements of the regulations are unable to be reconciled with the business operations and the particular requirements of the individual business involved.

Consultation with gas companies has indicated that there is currently some, albeit relatively small, incidence of this dynamic of additional costs being incurred due to the specific requirements of the safety case regulations. Therefore, it is clear that any substantial increase in the degree of prescriptiveness of the regulations would have the potential to substantially increase compliance costs in this way.

Reduced opportunity for harmonisation across jurisdictions

Numerous gas companies operate gas assets and/or gas retail businesses across more than one Australian jurisdiction. Given that safety case based regulation is widespread, there are important potential cost savings arising from the possibility of adopting consistent approaches to the development and implementation of safety cases in different states.

Clearly, the greater is the degree of prescription in the regulatory requirements in relation to safety cases the smaller is the possibility that these cost savings will be realised in practice.

Stifling innovation

In general terms, a key benefit of performance and process based regulatory systems is that they allow greater flexibility in compliance to regulated parties. This enhanced flexibility is particularly important in the dynamic context, as it helps to ensure that innovation in achieving compliance with the underlying regulatory objectives is not impeded by the need to comply with the specific prescriptive requirements.

Therefore, increased prescription in safety case of regulation has the potential to inhibit the realisation of possible reductions in regulatory compliance costs and to inhibit the achievement of improvements in regulatory effectiveness through better compliance strategies.

Fostering a "cut and paste" approach to safety case development

The underlying rationale for process based regulation, such as that requiring the development of a safety case, is that regulated parties adopt a management based approach and take substantial responsibility for determining the specific actions that they will undertake in order to achieve regulatory compliance. This is considered to be fundamental to the

development of a "safety culture" and, therefore, to the achievement of better safety outcomes.

In this context, there is a substantial risk that significantly increasing the degree of prescriptive detail as to the matters to be included in safety cases will act to undermine this fundamental logic of the regulatory approach being adopted.

In this context, it should be noted that Australian standards already exist which provide substantial guidance for gas companies in the development of their safety cases.

Counter to the philosophy of an outcome based regime

This objection to adopting a more prescriptive approach is, in effect, a slight variant of the above objection. That is, the philosophy of an outcome based regulatory regime is, in large part, rooted in the notion that the regulated parties should take a high degree of responsibility for determining the appropriate regulatory compliance response for their circumstances. The use of detailed prescriptive requirements clearly acts contrary to this philosophical approach.

An alternative perspective on this objection is that, under an outcome based regulatory regime, the regulated party is expected to have significant freedom of action, so that compliance can be achieved at minimum cost.

Difficulty of designing universally appropriate regulations

As discussed elsewhere, the range of gas companies operating in Victoria is very wide, with little commonality between the nature of the operations of a major pipeline company, on the one hand, and those of a gas retail business, on the other. Clearly, the greater is the degree of prescription contained in the regulations, the greater will be the degree of difficulty in designing a set of regulatory requirements that are equally applicable, or even reasonably applicable, to the operations of each of these parties.

Indeed, the proposed changes to the existing regulations, which would simplify the regulatory requirements applied to gas retail companies, are being adopted precisely in recognition of the difficulty experienced to date in applying the same regulatory requirements to both asset owners and gas retail companies.

7.1.3. Stakeholder views of the alternative

The 2007 Discussion Paper sought comment on the merits of both increasing and decreasing the existing level of prescription of the safety case regulations. Clearly, while the above sections have discussed the benefits and costs of an increase in the degree of prescription, the same arguments can largely be inverted if a reduction in the level of prescription is being considered. Thus, this issue will not be discussed separately.

Comments on the question of changing the current degree of prescription or the regulations were received from twelve respondents, following the publication of the Discussion Paper. Ten respondents were gas companies, while the remaining two were Worksafe and VENCorp. Of the 10 gas companies that responded to this question, posed in the Discussion Paper, seven argued that the level of the prescription contained in the existing regulations was appropriate, while the remaining three companies argued for a reduction in the existing level of prescription.

The majority of the seven companies who were broadly supportive of the current level of prescription in the regulations were gas transmission and distribution companies. By contrast, all three of the companies arguing for reduced prescription were gas retailers, rather than asset owners, whose arguments appeared to reflect a specific view that a lesser degree of prescription was appropriate in respect of retail activities. Indeed, one of these respondents argued that there was no requirement in other Australian states for gas retailers to complete a safety case *per se*. It can be noted, in this context, that the proposed regulations reduce the compliance requirements for gas retailers, particularly by removing the existing requirement for a facilities description to be undertaken.

Of the remaining two respondents, Worksafe argued against any reduction in the current level of prescription and suggested that there could be advantages in increasing the level of prescription of the regulations to the extent that this would lead to a clearer definition of the safety outcomes sought[27]. However, no specific suggestions were made as to what changes should be considered in this regard. Comparison of the proposed regulations with the major hazard facilities sections of the Occupational Health and Safety Regulations 2007[28] suggests that the two regulations are broadly similar in terms of their approach to specifying safety-case related matters. In some areas, additional prescription appears to exist in the OHS Regulations. These, relatively minor, additional degrees of prescription are, presumably, considered to be justified by the specific focus of these regulations on those facilities that entail the most major hazards and, as a consequence, require the most painstaking process of verification by the regulator of the adequacy of safety case based activities.

7.2. Limit the scope of the safety case regulations to asset owners

The second alternative to the proposed regulations that has been considered is that of restricting the requirement to prepare and implement a gas safety case to gas asset owners. The implementation of this alternative would, in practice, require an amendment to the **Gas Safety Act 1997** to change the definition of a

[27] VENCorp argued that gas retailers to play a role in emergency management and thus, by implication, apparently supported the continuing application of the safety case regulations to this sector. However, their comments did not specifically address the issue of the appropriate level of prescription in the regulations.

[28] See Chapter 5, Division 4. This division references some other parts of the regulations in establishing the requirements.

gas company contained in the Act. This reflects the fact that the Act requires all gas companies, as defined, to prepare and implement a gas safety case. Thus, to exclude gas retailers from this requirement, it would be necessary either to change the definition of a gas company so that retailers were no longer considered to be gas companies, or to change the requirement to prepare and implement a gas safety case so that it applied only to gas asset owners.

It can be argued that the fact that an amendment to the primary legislation would be necessary in order to enable the implementation of this alternative implies that the alternative cannot be considered to be feasible within the current legislative context. However, as gas retailers are not required to prepare gas safety cases in most other Australian jurisdictions, the implications of this alternative had been discussed below.

7.2.1. Expected benefits of the alternative

The major benefit expected to be associated with this alternative is that it would imply a more targeted approach to the application of the gas safety case regulations. This is because the operations of gas retailers are generally considered to entail a lower degree of risk than those of asset owning gas companies. Were this alternative to be adopted, it would be feasible for gas retailers to be given the option of opting in to the safety case arrangements on a voluntary basis. Under such an arrangement, Section 5 of the **Gas Safety Act 1997**, which allows the regulator to "declare" an organisation to be a gas company for the purposes of the Act, and hence the gas safety case regulations, could be used to apply the regulations to particular retailers where the regulator felt that the specific circumstances of their operations gave rise to risks that could be best managed through the adoption of a gas safety case.

Safety Awareness Plans

Were this alternative to be adopted, it is likely that it would be in the context of a requirement for a Safety Awareness Plan (SAP) to be adopted by gas retailers as an alternative to a gas safety case. SAPs are required in a number of other jurisdictions that do not require gas retailers to adopt gas safety cases. For example, in South Australia, SAPs are required to include the following:

- Systems for communicating information to consumers regarding safety in respect of gas infrastructure and gas installations and for measuring customer utilisation of the plan;
- information and warnings on the properties of gas;
- identification of the approvals schemes for gas appliances and the manner in which a consumer can determine whether a gas appliance has been approved;

- information that persons undertaking gas fitting work are required to be licensed or registered and the manner in which consumers can determine whether a person is appropriately licensed or registered;
- warnings about the care of gas installations, including gas appliances and gas infrastructure; and
- information about the correct action to be taken in respect of defects or malfunctions of gas installations, including gas appliances and infrastructure, and means by which consumers can report those defects or malfunctions.

Plans are also required to be resubmitted each year for a re-approval by the technical regulator.

The New South Wales model includes a requirement for a "Customer Safety Awareness Plan" and for safety and operating plans to be developed for each asset and submitted to the regulator for approval. These plans are required to be audited on a regular basis, as well as being subject to periodic review. In these respects, these regulatory requirements broadly follow the logic of the safety case regulation, suggesting that the net effect of not formally requiring a safety case to be prepared may be relatively limited in this context.

SAPs as used in South Australia and elsewhere are believed to be somewhat less costly for retailers than the safety case model being proposed in Victoria. However, this may largely reflect a difference in the allocation of key safety responsibilities. Under the Victorian legislation, gas retailers are responsible both for ensuring gas quality and for ensuring the safety of new connections before gas supply is commenced. However, in some states (e.g. Western Australia), network operators are instead responsible for ensuring the safety of new customer connections.

It should be noted that a number of variants on this alternative can be conceived. For example, the formal requirement for gas retailers to prepare a safety case could be retained, but ESV could provide one or more safety case “templates” to assist retailers in meeting their obligations. This approach has been adopted to assist small businesses to comply with process-based regulation in some areas, for example, the Food Act.

7.2.2. Expected costs of the alternative

The costs of adopted this alternative of requiring safety cases to be prepared and implemented only by asset owning gas companies would be substantially lower than those estimated for the proposed regulations. As noted in section 5, above, some $10.5 million of the estimated total cost of $13.3 million associated with the preparation and implementation of safety cases would be incurred by gas retail companies.

Therefore, were this alternative to be adopted, expected costs associated with safety case preparation and implementation would be reduced to $2.8 million in

present value terms over 10 years. That is, these costs would be $10.5 million lower than those of the proposed regulations over a 10 year period.

However, this cost reduction would be partly offset by the need to adopt some alternative measures to ensure that an adequate degree of safety was maintained in the operations of gas retail companies. For example, it was suggested above that a likely corollary of narrowing the scope of the safety case requirement would be that gas retail companies would be required to adopt a Safety Awareness Plan.

It is not possible to estimate the extent of the costs likely to be associated with the adoption of these plans, given that they would necessarily be dependent upon the specific form that the plans were required to take. However, and given that such plans would be expected to be significantly narrower in scope than a full safety case, these costs would necessarily be significantly lower than the costs associated with safety cases. If, for example, the costs of developing, implementing and reviewing Safety Awareness Plans were half as great as those incurred by retailers in developing and implementing safety cases, the total cost of this alternative would be equal to:

$2.8 million + ($10.5 million/2) = $8.1 million

in present value terms over 10 years, equivalent to a reduction of $5.2 million, or around 40%, in the expected costs of the proposed regulations.

The costs of Safety Awareness Plans might be lower again, if the responsibility for ensuring the safety of new customer connections was to be allocated to network operators, as is the case currently in Western Australia. However, any such cost reduction would, presumably, be largely offset by increases in the costs incurred by network operators in acquitting this responsibility. Thus, in "whole of society" terms, this would largely constitute a transfer of costs, rather than a reduction in regulatory costs.

8. Conclusion

The expected costs to gas companies of complying with the proposed regulations have been estimated at $13.3 million in present value terms over the 10-year life of the regulations. However, it must be emphasised that this cost represents the gross cost of regulatory compliance, while the majority of the gas companies consulted during the preparation of this RIS clearly stated that a high proportion of the work undertaken to ensure compliance with the safety case regulations would, in any case, be carried out, even in the absence of regulation in this area.

Consequently, it is apparent that the true, or "net ", costs of these regulations are substantially lower than the above estimate it would indicate. As noted in Section 5, a reasonable estimate of 25% of the gross costs identified being directly attributable to the regulations would suggest that the net cost of the regulations to gas companies would be as small as $3.3 million over 10 years in present value terms. Moreover, gas company representatives also clearly indicated that they believed that significant private benefits have accrued to their businesses as a result of the need to comply with the safety case regulations to data. In particular, a number of companies noted that the requirement to undertake a formal safety assessment had led to a better appreciation of the risk environment in which they were operating, while the requirement to prepare an emergency management plan has led to better preparation in this area

The number of gas company representatives also suggested that the net cost of maintaining safety cases tended to decline, often quite significantly, over time. This declining cost function results from the fact that these companies have increasingly seen the benefit of adopting safety case approaches in their day-to-day operations and have, as a consequence, increasingly aligned their operations and the safety case. In addition to reducing the net costs of complying with the safety case requirements, this alignment with day-to-day business practices also seems to have yielded performance improvements.

In sum, the proposed regulations enjoy widespread support among those who will be required to comply with them, while there is general agreement that the effectiveness cost of compliance with the regulations is small.

The costs to ESV associated with administering and enforcing the regulations have been estimated at $324,000 per annum, or $2.7 million in present value terms over 10 years. If this figure is added to the notional $3.3 million estimate of attributable costs to gas companies, the total cost of the proposed regulations appears to be of the order of $6.0 million in present value terms over ten years. Potential additional costs due to the likely impact of safety cases in increasing maintenance expenditures have also been identified, but have not been able to be quantified.

Break-even analysis

It has been estimated that, for each 10% reduction in the incidence of fatalities and injuries, benefits with a value of approximately $1.81 million would accrue over a 10 year period. Benefits in terms of reduced property damage and reduced economic losses due to fewer interruptions in gas supply have not been able to be estimated directly. It was noted in Section 6.1 that the compensated cost of unplanned gas supply interruptions alone was $2.88 million in 2006/07. However, this figure excludes uncompensated costs and the costs of property damage. Data set out in Section 2 indicate that there is a much higher number of gas incidents leading to property damage than incidents yielding death or injury: an average of 14 property damage incidents per year occur in the gas transmission and distribution system, while 234 property damage incidents per year occur in gas installations. Given these factors, it can be speculated that the benefits of reduced gas supply interruption and property damage be at least as large as the benefits due to reduced deaths and injuries, suggesting that the total benefits due to each 10% reduction would be of the order of $3.62 million.

Given these data, the proposed regulations can be considered likely to yield a net benefit to society provided that they are seen to improve overall gas safety performance by an amount approximately equal to 16.6% over the performance level that would otherwise be observed. It is considered highly likely that improvements in performance of this order of magnitude are being achieved as a result of the implementation of safety case regulations over the last 10 years. It is particularly important to note, in this context, that there is widespread support among regulated gas companies for the current and proposed safety case regulations and a clear view that the majority of the required compliance tasks in respect of these regulations yield a positive net benefit from their private viewpoints.

Proposed regulations vs alternatives

As noted in the preceding section, the alternative of changing the degree of prescription in relation to the required content of safety cases contained within the regulations has also been the subject of substantial consultation with gas companies. This consultation revealed a clear view that the current degree of prescription is appropriate on the part of a substantial majority of gas companies. Given this, and the experience of ESV in working with gas companies to implement the existing regulations, it is believed that retaining the existing level of prescription is preferred to the alternative of either increasing or decreasing the degree of prescription in the regulations.

The second alternative considered, of narrowing the scope of the safety case regulations so that only asset-owning gas companies are required to comply, was assessed as having significantly lower costs than the proposed regulations. However, it is clear that such an alternative would still require the adoption of broadly similar regulatory requirements in relation to gas retailers, as is currently the case in a number of other states.

In considering the relative merits of this alternative, vis-à-vis the proposed regulations, a significant consideration is that the gas retailers consulted in all cases saw important benefits for their businesses as a result of the need to comply with the safety case requirements. These benefits, a number of which were enumerated in the previous section, are believed to be more than sufficient to justify a preference for the proposed regulations over this second alternative. The fact that no gas retailer sought to argue that retailers ought to be excluded from the scope of the regulations underlines the point. Moreover, as noted above, the adoption of this alternative is not feasible given existing legislative arrangements and would require amendments to be made to be **Gas Safety Act 1997** in order to be adopted.

Given the above, it is believed that the proposed regulations will yield net benefits from the perspective of society as a whole and that these benefits will be greater than those that would be associated with either of the alternatives identified.

9. Administrative burden statement

As a result of the Victorian government to 2006 *Reducing the Regulatory Burden* policy statement, all significant new administrative burdens created by legislation or regulation are required to be measured using a Standard Cost Model methodology, established by the Department of Treasury and Finance. The results of this analysis are generally expected to be reported in the RIS in respect of proposed regulations that would impose significant new administrative burdens.

According to the *Victorian Guide to Regulation*[29], where a performance standard is set in regulation, all costs associated with verifying compliance with that standard are classified as constituting administrative burdens. Consequently, all the costs identified in Section 5.5., above, can be considered to constitute administrative burdens.

However, as has been discussed throughout this RIS, the proposed regulations will replace the existing Gas Safety (Safety Case) Regulations 1999 with limited amendments. Moreover, the major change between the existing and proposed regulations is that the requirements applicable to gas retailers will be simplified and reduced. Consequently, it is clear that there will be a modest net reduction in the existing level of administrative burdens associated with the regulations.

As a result, a formal Standard Cost Model Report has not been prepared to accompany this RIS. However, it should be noted that the consultation and data gathering exercise undertaken, as described in Section 5, has broadly followed the SCM methodology and has benefited from the advice of the Victorian Competition and Efficiency Commission in this regard.

[29] Second Edition, April 2007, Appendix F, p.13.

10. Small business impact assessment

The proposed regulations apply to all "gas companies", as defined in the **Gas Safety Act 1997**. In effect, this includes all gas transmission, distribution and retail companies. This sector is generally characterised by a predominance of large and medium-sized companies. The smallest companies, in relative terms, are found in the gas retail sector.

The consultation and analysis undertaken for this RIS had made clear that the relative size of the costs that the proposed regulations will impose on small gas retail companies is substantially greater than is the case for larger transmission and/or distribution companies. Two factors can be noted here: first, the average cost of compliance for gas retailers was estimated at $605,697 over 10 years in present value terms, compared with $326,145 for gas transmission and distribution companies. Thus, the generally smaller companies in the gas retail sector are expected to incur regulatory costs that are almost twice as great, on average, as those incurred in the transmission and distribution sector.

Second, a number of gas company representatives indicated that the size of the costs incurred in developing and implementing a gas safety case varied relatively little with the scale of the company's operations, with the scope of those operations being, by far, the larger determinant of overall regulatory costs. This indicates that the frequently observed regulatory dynamic in which a high proportion of regulatory costs are fixed, rather than varying with operational scale, applies in the current case.

In general terms, “process based" regulations, of which safety case regulations are examples, demonstrate this characteristic of substantial fixed costs to a high degree. However, this characteristic, which is generally disadvantageous to small business, is offset by the merits of the process based regulation in providing for the more effective identification and control of multiple risks in complex operating environments.

More fundamentally, as has been noted elsewhere in this RIS, the gas retailers consulted have generally indicated that they do not believe the existing regulations to be unduly onerous in terms of compliance costs. Moreover, they have indicated that their regulatory compliance efforts have increasingly become integrated with their normal business practices. Finally, it should be noted that regulatory burdens for gas retailers will decline under the proposed regulations, since they will no longer be required to complete a formal safety assessment as part of their safety case.

Given the above, it is not believed that the proposed regulations will have any unduly negative impacts on the small-business sector.

11. Evaluation strategy

The proposed regulations represent a continuation, with limited amendments, of a regulatory framework that has been in place in the gas industry in Victoria for the past decade. Consequently, ESV has developed substantial experience in the implementation of these regulatory arrangements. Moreover, as noted above, the release of a Discussion Paper in 2007 and the subsequent conduct of an extensive consultation process have provided the basis for a systematic evaluation of this experience in conjunction with stakeholders.

In this context, it is considered unlikely that substantial evaluation efforts in respect of the proposed regulations are or will be required in the short to medium term. However, ESV expects to continue to adopt a collaborative and interactive approach in its relations with gas companies and other stakeholders and to use these relationships to identify any emerging regulatory issues and evaluate the ongoing performance of the regulations.

12. Consultation

Two major consultative initiatives had been undertaken in connection with the remaking of these regulations. First, the discussion paper was released in 2007 and written comments invited from stakeholders. Comments were received from 10 gas companies, from Worksafe and from VENCorp.

Second, as noted in Section 4, above, gas companies were forwarded questionnaires and asked to participate in interviews in order to assist ESV to obtain data on the cost of complying with safety case regulations, the relationship between the regulatory requirements and normal business practices in relation to risk management and the broader impact of the safety case regulations on their business. Table 15 details the gas companies who were provided with questionnaires.

Table 15: Gas companies consulted during RIS preparation

Company	Type
TRU Energy	Natural gas retailer
Red Energy	Natural gas retailer
Dodo	Natural gas retailer
Origin Energy Retail	Natural gas retailer
Origin Energy LPG	LP Gas retailer
Elgas	LP Gas retailer
Western Port Water	LP Gas retailer
Coregas	Proposed LP Gas retailer
APA - GasNet	Transmission pipeline
Gas Pipelines Victoria	Transmission pipeline
SP AusNet	DB
Alinta	DB

Interviews were conducted and questionnaires were subsequently received from seven of these gas companies. These interviews occurred in February and March 2008.

As a result of the interviews conducted, it became clear that there was a generally high level of acceptance of the existing regulations among gas companies. Gas companies generally believe that there is a relatively high level of integration of their internal business practices and their compliance requirements under the regulations. Moreover, several commented that this degree of integration had increased over time and that they believed that the process of complying with the regulatory requirements had brought significant advantages to their businesses through improved safety management practices.

No gas company voiced major concerns with either the substance of the regulations or their practical implementation. Moreover, all indicated that they were generally comfortable with the proposed regulations, drafts of which had been provided to them prior to interview.

13. Statement of compliance with National Competition Policy

The National Competition Policy Agreements ("NCPA") set out specific requirements with regard to all new legislation adopted by jurisdictions that are party to the agreements. Clause 5(1) of the Competition Principles Agreement sets out the basic principle that must be applied to both existing legislation, under the legislative review process, and to proposed legislation:

> *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.*

Clause 5(5) provides a specific obligation on parties to the agreement with regard to newly proposed legislation:

> *Each party will require proposals for new legislation that restricts competition to be accompanied by evidence that the restriction is consistent with the principle set out in sub-clause (1).*[30]

Accordingly, every regulatory impact statement must include a section providing evidence that the proposed regulatory instrument is consistent with these NCP obligations. The recently released OECD Competition Assessment Toolkit[31] provides a checklist for identifying potentially significant negative impact on competition in the RIA context. This is based on the following three questions:

- Does the proposed regulation limit the number or range of suppliers?
- Does the proposed regulation limit the ability of suppliers to compete?
- Does the proposed regulation limit the incentives for suppliers to compete vigorously?

According to the OECD, if all three of these questions can be answered in the negative, it is unlikely that the proposed regulations will have any significant negative impact on competition.

Based on the discussions undertaken with a wide range of gas companies prior to the drafting of this RIS, it is believed that the proposed regulations will not

[30] Clause 5, Competition Principles Agreement, 11 April 1995 accessed at www.ncc.gov.au/pdf/PIAg-001.pdf
[31] See *Integrating Competition Assessment into Regulatory Impact Analysis.* OECD, Paris, 2007. (DAF/COMP(2007)8).

have any perceptible negative impact in relation to any of the above identified competition questions. Consequently, it is believed that they are fully compliant with Victoria's NCP obligations.

14. Compliance and enforcement strategy

ESV conducts a continuous programme of safety case compliance audits to confirm that gas safety risks are being managed by gas companies to a level that is as low as reasonably practicable. This is achieved by using a co-regulatory approach, where ESV shares part of the risk for the gas company's safety case by ensuring that all risks associated with the gas business are identified and incorporated into the safety management systems of that business.

The audits are conducted on a "continuous improvement" basis in order to ensure that the safety of gas users and the public is maintained and improved over time.

During 2006/07, there were 36 accepted gas safety cases overseen by ESV which included three new gas safety cases accepted by ESV during the year. ESV conducted and completed 44 safety cases audits in 2006/07, as follows:

- 12 transmission pipeline company audits;
- six distribution pipeline company audits;
- 10 natural gas retail company audits;
- 13 LP gas company audits;
- three landfill gas pipeline company audits.

ESV expects to maintain this current level of audit activity and, more generally, to continue with its current approaches to compliance and enforcement matters after the adoption of the proposed regulations. This reflects the fact that the proposed regulations represent a continuation, with slight refinements, of the existing regulatory structure and the fact that current arrangements are considered to have been effective in achieving sound safety and compliance outcomes.

Appendix 1: Proposed Gas Safety (Safety Case Regulations 2008

PART 1—PRELIMINARY

1 Objectives

The objectives of these Regulations are —

(a) to make provision for safety cases in relation to facilities, gas installations and appliances; and

(b) to provide for the reporting of gas incidents.

2 Authorising provision

These Regulations are made under section 118 of the **Gas Safety Act 1997**.

3 Commencement

These Regulations come into operation on 18 January 2009.

4 Revocations

(1) The Gas Safety (Safety Case) Regulations 1999[1] are **revoked**.

(2) The Gas Safety (Safety Case)(Amendment) Regulations 1999[2] are **revoked**.

5 Definitions

In these Regulations—

facility description means a facility description referred to in regulation 9 or 23;

formal safety assessment means a formal safety assessment referred to in regulation 24;

manufacturer has the same meaning as it has in section 51 of the Act;

operator has the same meaning as it has in section 51 of the Act;

published technical standard in relation to any matter means a document which gives technical information, guidance or advice on that matter and that is published by —

(a) Standards Australia; or

(b) the British Standards Institute; or

(c) the International Organisation for Standardisation (ISO); or

(d) the Institution of Gas Engineers (United Kingdom); or

(e) any similar standards organisation, whether within Australia or outside Australia;

the Act means the **Gas Safety Act 1997**.

PART 2—SAFETY CASE FOR FACILITY

Division 1—Application

5 Application of this Part

This Part applies to a safety case under Division 2 of Part 3 of the Act.

Division 2 - Content of safety case for gas retail facilities

6 Application of this Division

This Division applies to a safety case relating to a facility for the sale by retail of gas.

7 Person responsible for operation of facility

A safety case must specify the name, title and business address of the chief executive officer, managing director or other person who has responsibility for the management, control and safe operation of the gas company.

8 Person responsible for safety case

A safety case must specify the title of the position of the person who is responsible for preparation and submission of the safety case.

9 Facility description

(1) A safety case must contain a facility description.

(2) The facility description must provide a detailed description of the functions and operation of the facility to which the safety case relates.

(3) The facility description must provide sufficient information to enable the extent and scope of the operations of the gas company in relation to the facility and the risks associated with those operations to be assessed.

10 Safety management system

(1) A safety case must specify the safety management system followed or to be followed in relation to the facility.

(2) The safety management system must contain the information specified in Division 3.

Division 3 – Content of safety management system – gas retail facilities

11 Safety policy

The safety management system for a facility for the sale by retail of gas must specify the gas company's safety policy.

12 Organisational structure and responsibilities

The safety management system for a facility for the sale by retail of gas must specify the titles of the positions and the duties of the persons responsible for the implementation of the safety policy for the facility.

13 Adequacy of gas supply to customers

The safety management system for a facility for the sale by retail of gas must specify the means by which the gas company ensures that it meets its duties under section 32 of the Act.

14 Quality of gas supplied to customers

The safety management system for a facility for the sale by retail of gas must specify the means by which the gas company ensures that it meets its duties under section 33 of the Act.

15 Supply of gas for use in gas installations

The safety management system for a facility for the sale by retail of gas must specify the means by which the gas company ensures that it meets its duties under sections 34 and 35 of the Act.

16 Reporting of gas incidents

The safety management system for a facility for the sale by retail of gas must specify the means by which the gas company ensures that it meets its duties under section 36(1) and (2) of the Act in relation to the reporting of gas incidents.

17 Emergency preparedness

(1) The safety management system for a facility for the sale by retail of gas must specify a response plan designed to address all reasonably foreseeable emergencies.

(2) The response plan must –

(a) ensure the safety of the public and customers; and

(b) specify the means by which the gas company ensures that it meets its duties under sections 32 and 33 of the Act.

18 Internal monitoring, auditing and reviewing

(1) The safety management system for a facility for the sale by retail of gas must specify the processes and the performance indicators to be used by the gas company for monitoring, auditing and reviewing the adequacy and implementation of the safety policies and procedures specified in the safety management system.

(2) The safety management system for a facility for the sale by retail of gas must specify the means to be used to ensure -

(a) regular and systematic identification of deficiencies in those policies and procedures and in their implementation; and

(b) regular and systematic improvement in those policies and procedures and in their implementation to improve the safety of the facility and its operation.

19 Competence and training

(1) The safety management system for a facility for the sale by retail of gas must specify the work and staffing systems in relation to the facility to ensure that—

(a) the minimum level of qualifications, skill and competence that is required for the carrying out of work in relation to the facility is identified; and

(b) only persons with the qualifications, skills and competence appropriate to that work are assigned to carry out the work; and

(c) any training necessary for persons assigned to carry out that work is provided.

Division 4 - Content of safety case for other gas facilities

20 Application of this Division

This Division applies to a safety case for a gas company facility, other than a facility for the sale by retail of gas.

21 Person responsible for operation of facility

A safety case must specify the name, title and business address of the chief executive officer, managing director or other person who has responsibility for the management, control and safe operation of the gas company.

22 Person responsible for safety case

A safety case must specify the title of the position of the person who is responsible for preparation and submission of the safety case.

23 Facility description

(1) A safety case must contain a facility description.

(2) The facility description must provide a detailed description of the structure, assets, function and operation of the facility to which the safety case relates.

(3) The facility description must provide sufficient information to enable the extent and scope of the assets and operations of the gas company in relation to the facility and the risks associated with those assets and operations to be assessed.

24 Formal safety assessment

(1) A safety case must contain a formal safety assessment.

(2) The formal safety assessment for a facility must be consistent with the facility description for the facility and must provide—

(a) a description of the methodology used and investigations undertaken for the formal safety assessment; and

(b) an identification of hazards having the potential to cause a gas incident; and

(c) a systematic assessment of risk, including the likelihood and consequences of a gas incident; and

(d) a description of technical and other measures undertaken, or to be undertaken, to reduce that risk as far as practicable.

25 Safety management system

(1) A safety case must specify the safety management system followed or to be followed in relation to the facility.

(2) The safety management system must contain the information specified in Division 5.

Division 5 - Content of safety management system – other gas facilities

26 Safety policy

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the gas company's safety policy.

27 Organisational structure and responsibilities

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the titles of the positions and the duties of the persons responsible for the implementation of the safety policy for the facility.

28 Published technical standards

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the published technical standards applied to or used or to be used in the design, construction, commissioning, installation, operation, maintenance and decommissioning of the facility or any part of the facility.

29 Design, construction, installation, operation, maintenance and modification

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the procedures and the asset management plan that are used or to be used by

the gas company to ensure that the design, construction, commissioning, installation, operation, maintenance and decommissioning of the facility and any modification of the facility -

(a) is adequate for the safety and safe operation of the facility; and

(b) is adequate for the safe and reliable conveyance and supply of gas; and

(c) is adequate for ensuring the quality of gas conveyed or supplied; and

(d) takes into account the results of the formal safety assessment for the facility.

30 Permit to work system

(1) The safety management system for a facility (other than a facility for the sale by retail of gas) must specify all work relating to the facility for which a permit to work system needs to be established.

(2) If work is specified under sub-regulation (1), the safety management system must specify the permit to work system that is to apply in respect of that work.

(3) A permit to work system must -

(a) prohibit any person from performing work for which a permit is required without a written permit to work issued by a person authorised by the gas company to issue that permit; and

(b) specify the positions of the persons who are authorised to issue permits to work and to supervise that work; and

(c) ensure that persons authorised to issue permits to work and persons carrying out operations under those permits are competent

and are provided with appropriate training, procedures, tools, equipment and emergency support.

31 Emergency preparedness

(1) The safety management system for a facility (other than a facility for the sale by retail of gas) must specify a response plan designed to address all reasonably foreseeable emergencies which have been identified through the formal safety assessment.

(2) The response plan must -

(a) ensure the safety of the public; and

(b) specify the means to ensure the continued safe operation of the facility; and

(c) specify the means by which the gas company ensures that it meets its duties under sections 32 and 33 of the Act.

32 Reporting of gas incidents

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the means by which the gas company ensures that it meets its duties under section 36(1) and (2) of the Act in relation to the reporting of gas incidents.

33 Internal monitoring, auditing and reviewing

(1) The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the processes and the performance indicators to be used by the gas company for monitoring, auditing and reviewing the adequacy and implementation of the safety policies and procedures specified in the safety management system.

(2) The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the means to be used to ensure -

(a) regular and systematic identification of deficiencies in those policies and procedures and in their implementation; and

(b) regular and systematic improvement in those policies and procedures and in their implementation to improve the safety of the facility and its operation.

34 Gas incident recording, investigation and reviewing

The safety management system for a facility (other than a facility for the sale by retail of gas) must specify -

(a) the means to be used for recording and investigating gas incidents; and

(b) the management systems to be used for reviewing and taking action on the information so recorded or arising from those investigations to improve the safety of the facility and its operation.

35 Competence and training

(1) The safety management system for a facility (other than a facility for the sale by retail of gas) must specify the work and staffing systems in relation to the facility to ensure that—

(a) the minimum level of qualifications, skill and competence that is required for the carrying out of work in relation to the facility is identified; and

(b) only persons with the qualifications, skills and competence appropriate to that work are assigned to carry out the work; and

(c) any training necessary for persons assigned to carry out that work is provided.

Division 6 - Records

36 Records

(1) A gas company must, in accordance with this regulation, establish and maintain a system for keeping records relating to the safety case for each of its facilities.

Penalty: 20 penalty units.

(2) The records required to be kept under sub-regulation (1) are -

(a) the accepted safety case; and

(b) any revisions of the accepted safety case; and

(c) any written audit reports of the accepted safety case; and

(d) any reports of investigations by the gas company of gas incidents; and

(e) a copy of each report given by the gas company to Energy Safe Victoria.

(3) The records must be kept—

(a) at the address or location nominated in the safety case by the gas company; and

(b) in a manner that makes their retrieval reasonably practicable; and

(c) in a secure manner; and

(d) for the period of 7 years from the creation of the record.

PART 3—SAFETY CASES FOR GAS INSTALLATIONS AND APPLIANCES

37 Safety case under section 52 of the Act

Divisions 4, 5 and 6 of Part 2 apply to a safety case under section 52 of the Act as if -

(a) any reference to a facility were a reference to a complex gas installation; and

(b) any reference to a gas company were a reference to the operator of the complex gas installation.

38 Safety case under section 53 of the Act

Divisions 4, 5 and 6 of Part 2 apply to a safety case under section 53 of the Act as if -

(a) any reference to a facility were a reference to the supply and installation of the Type B appliances concerned; and

(b) any reference to a gas company were a reference to the manufacturer of the Type B appliances.

39 Safety case under section 54 of the Act

Divisions 4, 5 and 6 of Part 2 apply to a safety case under section 54 of the Act as if -

(a) any reference to a facility were a reference to the manufacture of the complex gas installations concerned; and

(b) any reference to a gas company were a reference to the manufacturer of the complex gas installations.

PART 4—REPORTING OF GAS INCIDENTS

40 Requirements for reporting of gas incidents

(1) For the purposes of section 36(1) of the Act, a gas company must report gas incidents in the form of a statistical summary on a quarterly basis.

(2) Despite subregulation (1), for the purposes of section 36(1) of the Act, a gas company must report a gas incident as soon as practicable after it occurs if the gas incident –

(a) involves a transmission pipeline; or

(b) causes the death of or injury to a person; or

(c) causes significant property damage; or

(d) causes significant disruption to the community.

(3) For the purposes of section 36(2) of the Act, a gas company must report a gas incident as soon as practicable after it becomes aware of the incident.

(4) The report of a gas incident under section 36 (other than a gas incident to which subregulation (1) applies) must specify, to the extent that the information is available to the gas company -

(a) the nature of the gas incident; and

(b) where and when the gas incident occurred; and

(c) the cause of the gas incident; and

(d) whether any emergency service attended the gas incident; and

(e) what remedial actions (if any) were taken by the gas company.

ENDNOTES

[1] S.R. No.5/1999.

[2] S.R. No.100/1999.

Appendix 2: Summary of key changes to existing regulations

Existing 1999 regulation	*Proposed regulation*	*Who is affected*	*Comment*
	Division 2 of Part 2 (content of safety cases for gas retail facilities)	Gas retail companies	Less stringent requirements will apply to natural gas and LPG retailers in relation to safety case submission requirements because their primary 'facility' is a service rather than a physical asset such as a gas network. Gas retailers will no longer be required to include a formal safety assessment in their schemes. The introduction of new regulations provides an opportunity to clarify requirements for non-asset safety cases, which up to now have been facilitated in practice by written guidance material and through discussions between ESV and gas retailers.
Not applicable	13 (adequacy of gas supply)	Gas retail companies	New requirement to specify how the company will meet its duties under section 32 of the **Gas Safety Act 1997** in relation to minimising risk arising from interruption of gas supply and reinstatement of interrupted supply.
Not applicable	14 (quality of gas supplied)	Gas retail companies	New requirement to specify how the company will meet its duties under section 33 of the **Gas Safety Act 1997.** Typically gas retailers discharge this obligation by making suitable provision in their contractual arrangements with upstream suppliers, ie. by requiring that the gas supplied is within specification and has been tested as required under the Gas Safety (Gas Quality) Regulations.
Not applicable	15 supply of gas for use in installations	Gas retail companies	New requirement to specify how the company will meet its duties under sections 34 and 35 of the **Gas Safety Act 1997.** This is intended to require a gas retailer submitting a safety case to tell ESV how it proposes to safely connect new customers to gas supply.

9(2) and (3) (facility description)	9(2) and (3) (facility description)	Gas retail companies	The existing requirement for gas companies that are retailers to set out a detailed description of the structure and assets of the relevant facility is being appropriately modified in the equivalent provisions of the new regulations. As outlined above, most gas retailers do not own or operate assets.
10(3) (formal safety assessment	Not applicable	Non-retail gas companies	The existing requirement for the formal safety assessment to include copy reports arising from the investigations carried out for the purpose of the assessment is to be removed. In practice, provision of the reports adds little value to ESV's consideration of a safety case and unnecessarily increases administrative burden on the safety case proponent.
14(b) (safety policy)	Not applicable	All gas companies	The existing requirement to specify the position of the person who determines the safety policy is to be removed. ESV considers that proposed regulations 8 and 22 (person responsible for safety case) is adequate for this purpose.
17 (design, construct-ion etc of facility)	29 (design, constructio n etc of facility)	Non-retail gas companies	The existing requirement is to be modified to make explicit the specification of the company's asset management plan. Asset management plans have previously been routinely specified or, if necessary, included or provided at ESV's request. Accordingly, plan specification is not a substantive new requirement.
17(b), (c) and (d)	Not applicable	All gas companies	The existing 1999 regulations were partially modelled on safety case regulations made under the Commonwealth **Petroleum and Submerged Lands Act** (PSLA) in relation to offshore oil and gas platforms. ESV's experience over the period since the commencement of the 1999 regulations suggests that some PSLA safety case provisions are not relevant to land-based gas transmission and distribution networks. Existing regulations 17(b), (c) and (d) are examples of such provisions and have been omitted accordingly.
18 (control systems)	Not applicable	All gas companies	The existing requirement to specify control systems in the safety management system is to be removed. See above comment for existing

			regulations 17(b), (c) and (d).
19 (machinery & equipment)	Not applicable	All gas companies	The existing requirement to specify critical safety equipment in the safety management system is to be removed. See above comment for existing regulations 17(b), (c) and (d).
22 (emergency com-munications systems	Not applicable	All gas companies	The existing requirement to specify emergency communications systems in the safety management system is to be removed. See above comment for existing regulations 17(b), (c) and (d).
Not applicable	17(2)(b) and 31(2)(c) - emergency prepared-ness	All gas companies	New requirements to specify how gas companies will meet their duties under sections 32 and 33 of the **Gas Safety Act 1997**. For example, in the event of supply interruption at the gas source, retailers are told to contact their downstream customers and arrange for them to stop using gas. The process for implementing these arrangements needs to be documented under the new requirements.

Appendix 3: Present Value calculations

Total cost estimates - retailers

	Year 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
Preparation	$ 347,776	347,776	347,776	$ 347,776	347,776	$ 347,776	347,776	347,776	347,776	347,776
5 yearly review	$ 695,552	$1,217,216	695,552	$ 695,552	695,552	$ 869,440	$1,564,992	$1,217,216	$1,391,104	$1,564,992
Total	$ 1,043,328	$1,564,992	$1,043,328	$1,043,328	$ 1,043,328	$1,217,216	$1,912,768	$1,564,992	$1,738,880	$1,912,768
Present value	$11,511,624									

Notes

1. 1 new retail business enters industry annually, requires a new safety case
2. Year 1 = 2009. Pattern of 5 yearly reviews as per dates of acceptance of initial safety cases.

Total cost estimates - transmission/distn companies

	Year 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
Preparation	$ 187,264			$ 187,264			$ 187,264			$ 187,264
5 yearly review	$ 187,264	$ 280,896	$ 93,632	$ -	$ 655,424	$ 280,896	$ 280,896	$ 93,632	$ 749,056	$ 187,264
Total	$ 374,528	$ 280,896	$ 93,632	$ 187,264	$ 655,424	$ 280,896	$ 468,160	$ 93,632	$ 749,056	$ 374,528
Present value	$2,906,271									

Note

1. One new transmission/distn business enters every 3 years, commencing year 1.