

# Energy Infrastructure Safety Management Policy

# **Energy Infrastructure Safety Management Policy**

This policy has been endorsed by the Director of Energy Safety in Victoria.

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### **Who we are**

We are Victoria's safety regulator for electricity, gas and pipelines.

Our role is to ensure that Victorian gas and electricity industries are safe and meet community expectations. We are also responsible for licensing and registering electricians, and educating the community about energy safety.

More information is available on the Energy Safe Victoria website: [www.esv.vic.gov.au](http://www.esv.vic.gov.au)

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# 1 Transitional arrangements

This policy will be applied by ESV as follows:

- **Gas Safety Case:** The policy took effect on 22<sup>nd</sup> October 2018, commensurate with the Gas Safety (Safety Case) Regulations 2018 that came into effect at that time. This includes the application of this policy to the production of SMPs for natural gas transmission pipelines.

A three month transition period applied to the production of Gas Safety Cases and natural gas SMPs: Safety Cases and natural gas SMPs with a first submission date after 22<sup>nd</sup> January, 2019, are assessed in accordance with this policy.

An 18 month transition period applies to the testing of Safety Case and natural gas SMP compliance: ESV will use this policy as the basis for regulatory monitoring and investigation activities from 22 April 2020 – from this time Safety Cases and natural gas SMPs that do not meet the statutory requirements described in this policy (and accompanying guidance material) may need to be amended or revised.

- **Pipeline Safety Management Plan (SMPs):** The policy took effect on 1<sup>st</sup> July 2019. This includes the application of this policy to the production of SMPs for non-natural gas transmission pipelines.

No transition period is applicable to the submission of non-natural gas SMPs, given ESV's view that this policy formalises the basis for the approach that ESV has taken over the last five years: SMPs with a first submission date after 1<sup>st</sup> July 2019, are assessed in accordance with this policy.

A 9 month transition period applies to the testing of SMP compliance: ESV will use this policy as the basis for regulatory monitoring and investigation activities from 22 April 2020, consistent with the implementation date for natural gas SMPs – from this time SMPs that do not meet the statutory requirements described in this policy (and accompanying guidance material) may need to be amended or revised).

- **Electricity Safety Management Scheme (ESMS):** The policy took effect on 29 November 2019, commensurate with the Electricity Safety (Management) Regulations 2019 that came into effect at that time.

A three month transition period applies to the production of Electricity Safety Management Schemes (ESMS): ESMSs with a first submission date after 29 February 2020 will be assessed in accordance with this policy.

An 18 month transition period applies to the testing of ESMS compliance: ESV will use this policy as the basis for regulatory monitoring and investigation activities from 29 May 2021 – from this time an ESMS that does not meet the statutory requirements described in this policy (and accompanying guidance material) may need to be amended or revised.

## 2 Terminology

In addition to existing terms established and defined in the energy safety acts, certain new terms are established in this policy document to communicate key policy concepts, and are defined in this section.

Term	Definition
<b>As Far As Practicable (AFAP)</b>	Is established in the energy safety acts as the test to be applied in a Safety Case to show that the risk control efforts made by the Licensed Network Operator/Owner (LNO) are adequate for meeting its statutory general duties and obligations.
<b>ESMS</b>	Means an Electricity Safety Management Scheme submitted by a MEC in accordance with section 99 of the ESA.
<b>Energy network</b>	Is a collective term for linear and network infrastructure defined in the energy safety acts, and for which Safety Cases are mandated.
<b>Energy safety acts</b>	Is a collective term that refers to the ESA, GSA, and PA. Individual Acts will be referenced in this policy to indicate where the requirements of a specific Act are unique; in all other instances the collective term will be used where the requirements are interpreted to be the same.
<b>Energy safety regulations</b>	Is a collective term that refers to the Electricity Safety (Management) Regulations 2019, Gas Safety (Safety Case) Regulations 2018, and Pipelines Regulations 2017. The individual name of each regulation will be used in this policy to indicate where the requirements of specific regulations are unique; in all other instances the collective term will be used where the requirements are interpreted to be the same.
<b>ESA</b>	Means the <i>Electricity Safety Act 1998</i> .
<b>Formal Safety Assessment (FSA)</b>	Is a collective term that refers to Formal Safety Assessments required under regulation 27 of the Gas (Safety Case) Regulations 2018, the standard (AS 5577) as adopted in regulations 12 and 26 of the Electricity Safety (Management) Regulations 2019, and the Safety Assessment as described in regulation 33 of the Pipeline Regulations 2017. A <i>Safety Management Study</i> performed in accordance with AS 2885 may form part of the FSA for a Gas Safety Case. The term refers to a risk assessment that must be performed by LNOs as part of their Safety Case development and submission.
<b>Gas company</b>	Means an entity as defined in the GSA, and within the meaning of the <i>Gas Industry Act 2001</i> to convey or supply natural gas. For the purpose of applying this policy Gas Companies are limited to asset owners/operators that transmit or are licensed to distribute natural gas.
<b>GSA</b>	Means the <i>Gas Safety Act 1997</i> .
<b>Incident</b>	Means a Serious Electrical Incident as defined in the ESA, a Gas Incident as defined in the GSA, or a Safety Incident as defined in the PA.
<b>Licensed Network Operator/Owner (LNO)</b>	Is a collective term for the operators and owners of energy conveyance and pipeline infrastructure, and includes Major Electricity Companies (MECs), natural Gas-Companies (GCs), and pipeline licensees (PLLs).
<b>MEC</b>	Means a Major Electricity Company as defined in the ESA, and licensed by the Victorian Essential Services Commission.
<b>Monitoring</b>	Means regulatory activities performed by ESV in order to establish a

Term	Definition
	LNO's safety performance, or compliance with an accepted Safety Case. Monitoring activities may include systems or compliance audits, compliance inspections, or incident investigations
PA	Means the <i>Pipelines Act 2005</i> .
Prescribed standards	Means technical or management standards specifically called up in energy safety regulations, and which provide additional detail on what is intended to be done or achieved through compliance with a particular regulation.
Risk	Is used in this policy to refer to potential events that may have undesirable safety consequences, or that may limit or negatively impact on the achievement of acceptable levels of safety. The energy safety acts require that assessment of the severity of risk weight both the potential consequences that could eventuate, and the likelihood of occurrence.
Risk description	Refers to a statement that summaries the key elements of a risk, and that forms the basis for analysis and assessment of the risk. A risk description summarises a scenario, and should contain elements that describe the hazard, the event where control of the hazard is reduced or lost (sometimes termed a 'mishap'), the causes of this mishap, and the foreseeable consequences of the mishap. Risk controls are aligned with, and assessed for their individual effectiveness against, the context of this risk description.
Safety Case	<p>Refers to a detailed document in which a LNO describes how they will meet the relevant general duties of the energy safety acts, and comply with regulations and prescribed standards, in order to achieve acceptable levels of safety.</p> <p>Safety Cases are risk-based, and explain how the LNO's risk management is adequate to achieve acceptable levels of safety, propose a formal approach for achieving these outcomes, and make commitments that this approach will be implemented, maintained, and managed to ensure that it remains effective.</p> <p>For the purpose of applying this policy Safety Cases are defined as being an ESMS under the ESA, a Gas Safety Case under the GSA, or a SMP under the PA</p>
SMP	Means a pipeline Safety Management Plan in accordance with the requirements of the PA.
Safety Management System (SMSy)	<p>Means the safety-specific management control system/s required by the energy safety acts, and includes elements specified in energy safety regulations that must be included in a Safety Case. The primary role of the SMSy is to ensure that there are adequate organisational control structures and processes in place to ensure that:</p> <ol style="list-style-type: none"> <li>a. The risk control approach proposed in an accepted Safety Case is implemented, managed and reported; and</li> <li>b. The LNO holder has mechanisms in place to continuously improve the safety management approach described in the Safety Case.</li> </ol>

# 3 Purpose of this policy

The energy safety acts and subordinate regulations establish the energy safety framework in Victoria. Regulatory policies (including this one) interpret and clarify what is intended to be achieved by the energy safety acts.

The purpose of this policy is to explain ESV's interpretation of the energy safety framework for the energy infrastructure sectors that transmit, distribute, supply and use gas and electricity, and that operate licensed pipelines, in order to establish clear requirements for energy infrastructure Safety Cases required to be submitted under the ESA, GSA or PA.

This policy has three main policy elements:

- a. This policy establishes the relative importance of certain sections or regulations within the energy safety framework, with respect to the intended and efficient administration of the Safety Case regimes for relevant energy infrastructure. In doing this it clarifies ESV's interpretation of the operation and processes of the Safety Case regimes as established through the energy safety legislation;
- b. Some parts of the policy interpret and define what the energy safety framework (including the energy safety acts) intends Safety Cases should address. In doing this it establishes the form and content of a Safety Case that would be acceptable to ESV;
- c. Some parts of the policy define how ESV may use certain regulatory provisions for administering the Safety Case regimes. In doing this it clarifies the options available to ESV when acting to administer the Safety Case regimes. The application of these provisions is determined – on a case by case basis - under ESV's regulatory governance structures and in accordance with the Compliance and Enforcement Policy, regulatory strategy, and procedures.

## 3.1 Scope

This policy applies to:

- a. *Gas Safety Cases* for natural gas transmission and distribution infrastructure, that Gas Companies are obliged to have in place compliant with the requirements of Part 3 of the GSA and Part 2 of the Gas Safety (Safety Case) Regulations 2018;
- b. *Electricity Safety Management Schemes* (ESMSs) that Major Electricity Companies are obliged to have in place. The requirements for these are set out in Part 10 of the ESA and the Electricity Safety (Management) Regulations, 2019; and
- c. Licensed pipeline *Safety Management Plans* (SMPs) that Pipeline Licensees are obliged to put in place compliant with the requirements of Part 9, Division 2, of the PA and Part 6 of the Pipelines Regulations 2017.

# 4 Statutory basis for the energy infrastructure Safety Case regimes

The gas Safety Case regime was implemented in 1998 through the proclamation of the GSA, following the disaggregation and privatization of the Gas and Fuel Corporation of Victoria's interests. It was modelled on the federal regulations applying at that time to Safety Cases for offshore oil and gas platforms, and attempted to strike a balance between light handed and non-prescriptive regulation against the need to provide guidance and certainty to gas companies.

The gas Safety Case regime influenced the design of ESMS requirements in the licensed electricity infrastructure sector as a mandatory requirement in 2009. The ESMS framework administered by ESV was originally modelled on the gas Safety Case framework, but was pre-dated by voluntary schemes for electricity employer operators and network operators. The mandatory ESMS regime was intended to give more emphasis to asset management, and specific regulations were created to address this.

Pipeline SMPs were introduced in 2000 through the introduction of the first pipelines regulations, with this type of Safety Case based on standards prescribed through AS 2885:1997 (and succeeding versions, including AS 2885: 2012).

Collectively the energy safety acts and energy safety regulations establish the regulatory safety framework for energy conveyance networks and linear pipeline infrastructure.

The requirements for operating under an ESV accepted Safety Case arise from section 37 of the GSA and section 99 of the ESA respectively. The PA requires pipeline SMPs under Part 9, Divisions 1 and 2, of the PA. The energy safety acts establish three Safety Case regimes, one for each type of LNO:

- a. The ESMS regime applies to Major Electricity Companies (MECs);
- b. The gas Safety Case regime applies to Gas Companies (licensed or otherwise declared);
- c. The SMP regime applies to pipeline licensees.

Regulations developed under the energy safety acts set out detailed requirements relevant to the preparation, submission, acceptance and compliance with Safety Cases, their content, and other matters.

ESV's administration of the Safety Case regimes focuses on:

- a. Monitoring LNOs to ensure that they meet the general duties<sup>1</sup> specified in the energy safety acts; and
- b. Enforcing compliance with specific requirements arising from the regulations; and
- c. The effective control of hazards and risks specified in the energy safety legislation; and

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<sup>1</sup> Section 32 of the GSA, section 98 ESA and section 124 of the PA

- d. The sustainability and integrity of energy networks across the asset lifecycle.

## 4.1 Gas Companies

Section 32 of the GSA establishes general duties to be met by Gas Companies, and that form the basis for the development of a Gas Safety Case. These duties require a Gas Company to manage and operate a gas facility to minimise hazards and risks to people and property.

Section 37(2) of the GSA specifies that a gas Safety Case must be in writing, and specify the SMSy that the Gas Company has implemented to meet the general duties specified in section 32 of the GSA, and comply with subordinate regulations and prescribed standards relevant to the safe management and operation of the gas facility.

Gas Companies must also comply with the PA if they hold a pipeline licence, including operating pipelines in accordance with an SMP accepted by ESV.

The PA prescribes the technical standard AS 2885 (parts 1 and 3). Gas Companies with pipeline licences must therefore also comply with AS 2885. The operators of pipelines that are exempted from the PA may adopt these standards at their discretion.

In practice the Safety Case and SMP may take the form of a single document – if a Gas Company uses a single document then it should be clearly stated in the Safety Case that it is intended to meet both sets of requirements and is a Gas Safety Case and a SMP. Regardless of the form of document it must comply with the applicable legislation and safety standards prescribed through regulations.

A Gas Company may not operate an energy network without having a Safety Case accepted by ESV.

Gas Companies must review and resubmit Safety Cases to ESV for acceptance every five years.

## 4.2 Pipeline Licensees

The PA requires pipeline SMPs under Part 9, Divisions 1 and 2, of the PA:

- a. Section 124 of the PA establishes general duties to be met by pipeline licensees;
- b. Section 126 specifies that a SMP must identify risks to the safety of the public that arise from the operation of a pipeline, specify what the licensee will do to eliminate or minimise those risks, and address any matters required in regulations.

The PA prescribes the technical standard AS 2885 (parts 1 and 3). Pipeline Licensees must therefore comply with AS 2885, and specify how this contributes to meeting the general duties specified in the PA.

A pipeline licensee may not use or carry out an operation on a pipeline without having a SMP accepted by ESV in writing.

Pipeline Licensees must review their SMPs no less than every five years, and report the results to ESV<sup>2</sup>. ESV requires the reviewed SMP to be submitted to ESV.

## 4.3 Major Electricity Companies

Section 98 of the ESA establishes general duties to be met by MECs, and that form the basis for the development of an ESMS. These duties require a MEC to manage and operate a supply network to minimise as far as practicable hazards and risks to people and property, and bushfire risks arising from the supply network.

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<sup>2</sup> Section 46 of the GSA and section 132 of the PA

Section 99(2) of the ESA specifies that an ESMS must be in writing, and specify the SMSy that the MEC has implemented to meet the general duties specified in section 98 of the ESA and comply with subordinate regulations and prescribed standards relevant to the safe management and operation of the supply network.

Section 99(2A) of the ESA requires a MEC's ESMS to include a plan for the mitigation of bushfire danger. ESV considers an accepted BMP that complies with the Electricity Safety (Bushfire Mitigation) Regulations 2013 to meet this requirement; therefore a ESMS does not need to include a bushfire mitigation plan. The relationship between the two documents is as follows:

- a. The ESMS:
  - i. specifies risk management systems, policies and practices, including the AFAP decision-making methodology
  - ii. describes an FSA identifies and assesses bushfire risk arising from the supply network
  - iii. specifies the outcomes of risk control decisions made by the MEC in relation to bushfire risks identified in the FSA.
- b. The BMP:
  - i. specifies preventative strategies and programs in place to mitigate the risk of network caused bushfire
  - ii. specifies the management systems, processes and procedures in place to operate and maintain the network during times/in zones of high bushfire risk, and responding to bushfire emergencies.

The ESMS must therefore reference the accepted BMP (or other replacement BMPs that are accepted by ESV from time to time) as the document that specifies how bushfire risk arising from the supply network will be minimised AFAP; the BMP must specify a plan for minimising the risk AFAP.

Section 112 allows, under certain circumstances (and notwithstanding the relationship between the two documents), an ESMS to be revised independently of a BMP and vice versa.

A MEC may not operate a supply network without having an ESMS accepted by ESV.

MECs must review and resubmit the ESMS to ESV every five years.

# 5 Safety Case Regime Policies

## 5.1 Safety Cases demonstrate acceptable levels of safety through appropriate management of risk, including sustainable asset safety and integrity

ESV's position is that two key safety expectations were established through the introduction of the Safety Case regimes:

- a. The first is that safety is achieved through the adequate control of hazards and risks, and that LNOs meet their general duties under the energy safety acts where they can show that they have:
  - i. Appropriate risk control measures in place to minimise risks AFAP; and
  - ii. An effective SMSy that ensures risk control measures perform as intended, that monitors and maintains the ongoing adequacy and effectiveness of risk control measures, and that ensures compliance with the Safety Case as accepted by ESV.

The energy safety acts establish that risk minimisation AFAP is the basis for a LNO to meet its general duties, and by demonstrating the adequacy and extent of risk control effort through a Safety Case.

The energy safety acts allow LNOs the flexibility to adopt any risk assessment methodology so long as it provides a clear case for the selection of risk controls based on consideration of the frequency and consequence of incidents, the available risk control means, and practicability.

Further explanation of risk minimisation AFAP is provided in section 5.6 of this policy. Guidance and suggested methods for demonstrating risk minimisation AFAP are provided in ESV's guidance documents<sup>345</sup>.

- b. The second is that whole of service life asset integrity and the delivery of sustainable asset outcomes are risks that must be managed to ensure that the network/facility will remain safe throughout the network lifecycle. LNOs show this where they:
  - i. Have an appropriate asset management approach in place that contributes to meeting their general duties arising from the energy safety acts; and
  - ii. The asset management approach ensures that the design, construction, commissioning, installation, operation, maintenance and decommissioning of the assets is adequate for monitoring and maintaining the integrity of the assets, taking into account the expected service life of the network/facility and the requirement to minimise risks AFAP<sup>6</sup>.

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<sup>3</sup> Gas Safety Case Preparation and Submission for Facilities and Pipelines Guidelines (gas distribution companies)

<sup>4</sup> Safety Management Plan Preparation and Submission for Pipelines (pipeline operators)

<sup>5</sup> Electricity Safety Case (ESMS) Preparation and Submission Guideline for MECs (MECs)

<sup>6</sup> Asset 'sustainability' and 'integrity' refers to the prevention of long-term degradation of an asset that could contribute to incidents arising from foreseeable risks.

## 5.2 Safety Case regimes are an outcome focused (not prescriptive) process-based regulatory approach

The energy infrastructure Safety Case regimes are founded on a process-based regulatory approach that uses principle/performance and outcome-based regulatory approaches. Process-based regulatory approaches are preferred where:

- a. Risks are substantial, and may need to be managed simultaneously;
- b. Multiple options exist to manage hazards and risks, and the selection of the correct option/s is critical to appropriate risk management; and
- c. The operators of energy networks are best placed (through knowledge and expertise) to understand the risk of the networks that they operate, and are better able to identify and select the most effective solutions to reduce risks.

ESV's position is that this approach is preferred for the regulation of energy networks, pipeline infrastructure because:

- a. It is more suited to the control of hazards and risks that are complex, that may be geographically diverse, and that may have significant consequences (irrespective of risk frequency);
- b. It recognises that network safety cannot be achieved through mandating detailed and prescriptive requirements for LNOs to follow<sup>7</sup>; and
- c. It provides a mechanism for LNOs to agree to a tailored approach to meeting their duties under the energy safety acts and to achieve acceptable levels of safety, while balancing regulatory burden against the significance of the hazards and risks arising from the lifecycle management of their energy network. In the absence of this tailored approach ESV would need to apply more prescriptive standards and conservative practices when conducting regulatory monitoring activities.

A Safety Case has value beyond demonstrating compliance. The Safety Case:

- a. Provides an explicit record of residual risk accepted by the LNO;
- b. Provides a baseline for the management of change;
- c. Is a record of established (safety) engineering and / or work practices;
- d. Provides a record for defending legal processes;
- e. Is a means for communicating the management of hazards and risks to key stakeholders, including shareholders, employees, regulators, the community, insurers and investors/markets.

## 5.3 Safety Cases articulate the LNO's commitment to achieving acceptable levels of safety

The energy safety acts specify the general duties to be met by LNOs when managing and operating an energy network to minimise hazards and risks to people and property<sup>8</sup>, with specific requirements detailed through regulations and prescribed standards that must be complied with.

The Safety Case document is the mechanism through which the LNO makes a case to ESV as to how it will meet its relevant general duties and achieve acceptable levels of safety; ESV then accepts the

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<sup>7</sup> This does not preclude the use of prescribed requirements as being the preferred means for addressing well-defined and common technical hazards.

<sup>8</sup> Section 32 of the GSA, section 98 of the ESA and section 124 of the PA.

Safety Case if this case is made appropriate to the energy network and consistent with the requirements of the relevant energy safety acts and subordinate regulations.

A Safety Case must provide sufficient information to allow ESV to evaluate the way in which the hazards and risks of a network or facility have been assessed and are proposed to be controlled and reported through a SMSy. The LNO Safety Case must also provide sufficient clarity to allow ESV to regulate the network post-acceptance. To achieve this, a Safety Case should:

- a. Explain how the relevant general duties of the relevant energy safety acts will be met;
- b. Make a case for how risks are controlled so that they are minimised AFAP;
- c. Describe the extent of risk control needed to achieve acceptable levels of safety;
- d. Specify how management structures and processes ensure that risk is controlled as intended; and,
- e. State the commitments being made by the LNO to do this, and to which it will be held to account under the regulatory framework.

A LNO must also show in a Safety Case that prior deficiencies in the performance of, or compliance with, the previous Safety Case have been addressed.

ESV does not develop or contribute to the content of a particular Safety Case (unless determining a LNO's Safety Case under the ESA, or GSA)<sup>9</sup>; this remains the responsibility of the LNO.

## 5.4 Adequate risk control provides acceptable levels of safety

LNOs are required by the energy safety acts to identify hazards and risks that could lead to an incident, and to implement and maintain solutions that control risks, in order to achieve acceptable levels of safety.

This includes the minimisation of identifiable risk AFAP, which includes adequate network/facility/asset management to prevent or limit the extent of future risk throughout the relevant lifecycle.

The hazards and risks to be identified and dealt with in a Safety Case are those that could lead to:

- a. Gas incidents as defined in section 3 of the GSA; or
- b. Serious electrical incidents as defined in section 3 of the ESA<sup>10</sup>; or
- c. (Pipeline) safety incidents as defined in regulation 5 of the Pipelines Regulations 2017.

Acceptable levels of safety are achieved through the adequate control of risk, and LNOs meet their relevant general duties under the energy safety acts when they can show that they have appropriate risk control measures and management systems in place to minimise risks AFAP.

LNOs must specify through their Safety Case how this has been achieved, and establish how their SMSy and Asset Management approach ensure that this will remain so in the future.

ESV's role is to ensure that a LNO achieves the acceptable levels of safety specified in an accepted Safety Case. The focus of ESV's efforts will be on:

- a. Testing that the LNO complies with the details of the accepted Safety Case (i.e. that the LNO does what it committed to doing in the Safety Case); and

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<sup>9</sup> Section 105 of the ESA and section 43 of the GSA

<sup>10</sup> Regulations 28 and 29 of the Electricity Safety (Management) Regulations 2019 define which serious electrical incidents must be reported to ESV.

- b. Challenging that the approach described in the Safety Case is - and will remain over time – effective for achieving acceptable levels of safety and to minimise risk AFAP.

## 5.5 A Safety Case must address all aspects of risks

An acceptable Safety Case must consider hazards and risks with respect to the unique features and characteristics relevant to safely managing an energy network or asset across its lifecycle, including:

- a. Local operating environments, including, for example, where integrity hazards may be more prevalent or significant, site specific hazards and risks, or where local environmental conditions accelerate the degradation of assets;
- b. Dynamic operational modes and circumstances, including when undertaking abnormal or atypical operations – for example: where an energy network is operating close to (or beyond) safe operating limits, or when subject to high demand;
- c. The condition of assets that are part of the energy network – for example, where some parts of a network, or a particular group of assets, are in a more degraded state;
- d. Where additional risk control efforts should be made because the adequacy of existing risk controls cannot be demonstrated.

An acceptable Safety Case must specify the practicable efforts that are, or will be, made to control risks and prevent incidents from occurring.

An acceptable Safety Case will also specify how risk uncertainty (arising from incomplete or indirect data sources) has been factored into decisions made to establish the practicability of risk control. Where uncertainty exists additional measures and controls may be required to show that risk has been minimised AFAP (i.e. the greater the uncertainty, the greater the risk control efforts required).

## 5.6 A Safety Case must specify risk minimisation AFAP

The energy safety acts establish key risk concepts that suggest how to determine what constitutes an acceptable level of safety in relation to the energy safety framework:

- a. Acceptable safety levels are achieved through the adequate control of risks; and
- b. Risk control is the management of these risks (with respect to risk frequency and risk consequence); and
- c. Adequate control is shown through the reduction of these risks (“minimise”) on a sustainable basis; and
- d. How much must be done to reduce risk is identified through consideration of what is ‘practicable’.

The energy safety acts require that risk be minimised AFAP; this does not explicitly require that hazards must be eliminated, unless elimination is practicable.

The energy safety acts establish these risk control requirements through specifying general duties for LNOs, but qualifies what is required through using the term AFAP to avoid imposing a duty requiring absolute (guaranteed) safety to be achieved:

*“A gas company must manage and operate each of its facilities to minimise **as far as practicable** hazards/risks to public safety and property damage.” Section 32 (GSA)*

and

*“A major electricity company must design, construct, operate, maintain and decommission its supply network to minimise **as far as practicable**, hazards/risks to public safety, damage to property and against bushfire danger.”* Section 98 (ESA).

Section 124 of the PA includes a similar qualification with the same intended meaning as those found in the other energy safety acts:

*“A licensee must manage any pipeline operation so as to minimise **as far as is reasonably practicable**, hazards/risks to public safety and environment.”*

The qualification AFAP sets a standard that must be applied when:

- a. Meeting the general duties in the energy safety acts, and particularly where these duties specify particular hazards and risks that must be addressed; and
- b. When addressing hazards and risks that may lead to gas incidents, serious electrical incidents or (pipeline) safety incidents, and particularly those specified in the energy safety acts.

The energy safety acts commonly define practicable<sup>11</sup> in the context of considering the:

- a. Severity of the hazard or risk in question; and
- b. The state of knowledge about the hazard or risk and any ways of removing or mitigating the hazard or risk; and
- c. The availability and suitability of ways to remove or mitigate the hazard or risk; and
- d. The cost of removing or mitigating the hazard or risk.

Section 125 of the PA defines reasonably practicable<sup>12</sup> using similar considerations to those found in the ESA and GSA, but departs by making explicit the requirement to have regard for “the likelihood of the hazard or risk concerned eventuating” *and* “the degree of harm that would result if the hazard or risk eventuated”.

The term ‘as far as practicable’ can be taken as intended to mean ‘reasonably practicable’, so long as all reasonable steps are taken to reduce or remove risk, without making it an absolute duty, and so that cost factors are not given excessive emphasis.

The energy safety acts specify what risk assessment management is intended to achieve, and provide necessary flexibility in the LNO’s choice of risk assessment methodology.

## **5.7 Alternative risk qualifications are taken to have the same meaning as AFAP**

Certain subordinate regulations to the energy safety acts may use qualifications similar to AFAP, usually by including words such as ‘reasonably’ or ‘reasonable’, but these should be read as having the same intended meaning and application as the terms specifically used in the energy safety acts.

Alternative risk qualifications may be used in other jurisdictions, within industry, or be specifically adopted in Australian and International standards. The most commonly used alternative qualification used in the energy infrastructure sectors is *As Low As Reasonably Practicable* (ALARP), however others may be used.

While these qualifications may have specific interpretations or intended meanings when applied in the context of another jurisdiction, industry or the standard specific purpose, when used within the Victorian energy safety jurisdiction they should be interpreted as having the same intended meaning as the qualification (AFAP) included in the energy safety acts.

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<sup>11</sup> Section 3 of the GSA and section 3 of the ESA

<sup>12</sup> Section 125 of the PA

ESV's position is that, regardless of the meaning or interpretation of these qualifications (or the particular risk assessment methods they are applied within), they can be considered as having the same intended effect, so long as they meet the statutory requirements for a LNO to specify how it has minimised risk AFAP.

## 5.8 A Safety Case must establish what is reasonable to be done to control risk

The interpretation and determination of what is practicable in relation to a specific hazard or risk is a key part of a Safety Case.

A demonstration of risk minimisation AFAP involves creating (in the Safety Case) a structured case that the selected risk controls appropriately balance the severity of the risk against the effort, time and resources needed to control it, in order to achieve an acceptable level of safety.

Safety Case arguments that it is *not* reasonable to address or treat a hazard or risk through adopting an available risk control measure must explain how the effort or cost involved significantly outweighs the safety benefit that can be achieved.

ESV will not accept Safety Cases that cannot show that there is a 'grossly disproportionate' difference between effort/cost and safety benefit; that is, the difference between the two must be clearly significant, not marginal or uncertain.

Gross disproportion can be seen as a means for addressing risk uncertainty; the greater the degree of uncertainty with regards to the risk occurring, the more precautionary the selection of adequate risk controls must be.

The decision to, and justification for, *not* adopting feasible risk control measures must be clearly documented in the Safety Case.

Safety Case arguments that a risk is or has been minimised AFAP based solely on consideration of likelihood will not prove practicability to ESV.

## 5.9 Technical standards may be useful for describing how acceptable levels of safety will be achieved

Technical standards may be prescribed in regulations (and on rare occasions within a statutory act) as prescribed standards that extend and clarify particular regulations. LNOs must follow and comply with prescribed standards where applicable, unless otherwise exempted.

A LNO may choose to use additional non-prescribed technical standards<sup>13</sup>. A LNO must specify the prescribed and non-prescribed standards that they are relying upon to control safety risks, and explain the rationale for their application, within the Safety Case.

Technical standards may assist a LNO by providing advice that assists in the identification, selection, and adaption/implementation of risk controls. They may also help show that selected risk controls are the most appropriate and practicable controls for a particular risk. The role of standards in a Safety Case may be to:

- a. Specify risk control appropriateness or effectiveness, by establishing commonly accepted practices or prescription for control of well-known hazards and risks;
- b. Provide a starting point for developing risk controls for emerging or infrequent risks, by establishing principles for achieving minimum outcomes;

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<sup>13</sup> AS 5577 - 2013 is a prescribed standard under the Electricity Safety (Management) Regulations 2019, and specifies much of the content of an ESMS for MECs. This includes a requirement for the ESMS for MECs to identify all published technical standards that the MEC relies on to manage and operate the supply network across its lifecycle.

- c. Suggest good practices for governance, compliance and management systems.

While technical standards may be some use in explaining how particular hazards and risks might be managed, LNOs need to be aware that simply listing a standard in a Safety Case means it is committing itself to everything that the standard contains. As non-compliance with a Safety Case is an offence which may carry significant penalties, LNOs need to make sure that they do not unintentionally commit themselves to things they do not intend to do.

A Safety Case must specify the technical standards that the LNO relies upon to ensure adequate risk controls are in place, explain how they have been selected/applied/implemented, and explain how the standard helps specify the function and performance of a risk control so that it is effective (including specifying the particular part of the standard that is relevant to each risk control).

## 5.10 Safety Case Acceptance

Following desktop review and validation of a Safety Case, ESV's acceptance decision making processes consist of two steps:

- a. Submission of a decision recommendation, assessment report, and decision risk forward action plan to a Safety Case Evaluation Panel, for acceptance decision review and endorsement (or otherwise);
- b. Formal acceptance, or not, of a Safety Case by ESV – a formal decision letter will be promptly issued to the LNO advising of ESV's decision.

ESV's formal decision letter will:

- a. In the case that the Safety Case is accepted:
  - i. Notify the LNO that the Safety Case has been accepted
  - ii. Specify any conditions (through provisional acceptance statutory provisions) that must be satisfied within a specified timeframe.

or

- b. In the case that the Safety Case is not accepted, notify the LNO that:
  - i. The Safety Case has not been accepted,
  - ii. The grounds for rejection,
  - iii. Whether or not an option exists to submit a new Safety Case (where ESV does not intend to determine the Safety Case for a LNO), and
  - iv. Options available to the LNO to seek a review of ESV's decision.

## 5.11 Provisional Acceptance of a Safety Case

ESV may accept a Safety Case with conditions that must be satisfied by the LNO according to the timeframes and standards specified by ESV within the acceptance letter<sup>14</sup>. These conditions may relate to improvements in the Safety Case, or the rectification of minor defects in the SMSy specified in the Safety Case. Conditions may include specified limitations on the operation of the energy network during the period of the provisional acceptance.

ESV's position is that provisional acceptance is intended to provide an efficient means to allow minor amendments to be made to the safety and asset management systems specified in a Safety Case, without unnecessarily delaying acceptance and subsequent operation of the energy network. This

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<sup>14</sup> ESA section 103 (Provisional Acceptance); GSA section 41 (Provisional Acceptance); PA Section 128(4) (acceptance with conditions)

means that the period of provisional acceptance, and the period for complying with the conditions, will be limited to no more than six months.

Provisional acceptance will not be given by ESV where it believes that the Safety Case does not specify how the LNO will meet their general duties under the energy safety acts, or where there are material defects in the scope or content of a Safety Case with respect to achieving acceptable levels of safety.

This type of acceptance is limited to the period specified in the acceptance letter during which the conditions must be satisfied; after this time a new acceptance decision is needed, or the accepted Safety Case no longer has effect. This would mean that the LNO is operating the energy network without an accepted Safety Case.

Alternatively, a LNO may submit an alternative Safety Case for acceptance prior to the expiry of the conditional acceptance. A LNO should ensure that an alternative Safety Case is prepared, submitted to ESV, and assessed and accepted by ESV so that there is no gap in acceptance coverage.

## **5.12 Safety Case Acceptance via Determination by ESV**

ESV may determine a Safety Case on behalf of a gas or electricity LNO<sup>15</sup> to ensure its continuity and effectiveness.

There is no provision in the PA that allows ESV to determine a SMP, but ESV may require a SMP to be amended following consultation with the pipeline licensee.

Before determining a Safety Case for a gas or electricity LNO, ESV must first notify the LNO in writing that the submitted Safety Case is not accepted, or the LNO must have failed to submit a Safety Case as required by ESV; ESV will then determine the Safety Case to be applicable to a LNO's energy network.

In determining a Safety Case ESV may specify all or part of a system, process or activity that it believes is necessary for to minimise risk AFAP and achieve an acceptable level of safety. ESV may include some parts of a LNO's submitted Safety Case (if any) into the determined Safety Case without amending these parts.

An ESV-determined Safety Case has the same effect as one submitted by a LNO and must be complied with by the LNO.

A LNO may submit a revised Safety Case for acceptance by ESV at any time, which would replace the determined Safety Case once accepted by ESV. However, until an alternative Safety Case is accepted by ESV to replace the determined Safety Case, the LNO must continue to comply with the Safety Case determined by ESV.

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<sup>15</sup> ESA section 105; GSA section 43.

# 6 Maintaining Safety Case currency

ESV accepts a Safety Case on the basis that it is intended to:

- a. Have a finite lifespan to ensure that the Safety Case remains valid and appropriate to manage the risks arising from changes to relevant assets. The ESA and GSA specify that Safety Cases must be reviewed and re-submitted every five years to achieve this purpose.<sup>16</sup>
- b. Be revised where there is a material change to the risk profile that the Safety Case addresses, or a material change to the Safety Case previously accepted by ESV.<sup>17</sup>
- c. Be amended on a regular basis to ensure that the content is complete and relevant with respect to providing an accurate and complete context for ESV to assess the adequacy of risk controls, and in order to efficiently interact with the LNO.

ESV recommends that all LNOs (including pipeline licensees) regularly amend their Safety Case so that the risk context established in the description of the network remains current. This will help ensure that a Safety Case reflects the current risk management practices and processes used by the LNO to meet their general duties under the energy safety acts.

This will also allow ESV to form a view as to the adequacy of the LNO's proposed risk management approach, and to efficiently assess and validate a Safety Case if resubmitted.

## 6.1 Transfer of operational control

ESV requires LNOs to promptly notify ESV of a proposed transfer of operational control, from the licensed entity to another entity, in relation to all or part of an energy network. ESV will then assess the risks involved with a new operational controller, or the potential for changes to the acceptable control of risks. ESV will then advise all parties on whether a minor amendment to, or full revision of, the Safety Case is required.

A change in operational control will usually be associated with a transfer between two entities with different ABN or ACN numbers.

## 6.2 Amending Safety Cases

Safety Case amendments are defined as minor updates to technical and factual items within the content of the Safety Case. These updates should not have any material impact on the SMSy and safety governance processes, selected risk controls and their performance standards, or asset management approach.

ESV expects that a LNO will regularly amend the Safety Case to ensure the content is accurate and current, and to make the most recent version easily accessible in order to enable ESV to monitor and assess the adequacy of the risk controls and SMSy specified in the Safety Case.

ESV requires LNOs to be able to identify all amendments made to the Safety Case since acceptance by ESV.

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<sup>16</sup> Section 46 of the GSA and sections 108 and 119 of the ESA.

<sup>17</sup> Section 45 of the GSA and sections 107 and 120 of the ESA.

## 6.3 Revising Safety Cases

ESV requires LNOs to promptly notify ESV of any material changes to the network risk profile or Safety Case as they occur, so that ESV can advise on whether a minor amendment to, or full revision of, the Safety Case is required.

The energy safety acts require a Safety Case must be revised, and submitted to ESV for acceptance, where a change in circumstances has a material impact on the LNO's risk profile, or triggers changes to the SMSy and safety governance processes, selected risk controls and their performance standards, or asset management approach. This may include:

- a. Changes to, or modification of, the energy infrastructure network that may significantly increase the overall level of risk. This may include changes to works or network lifecycle management practices that are specified as critical risk controls in the accepted Safety Case.

Alternatively, this may require new risk controls to be specified, or existing specified risk controls to be modified. If the LNO determines that existing risk controls are adequate to manage the increase in risk so that risk continues to be minimised AFAP, the outcomes of this determination should still be notified to ESV for determining if a revision and resubmission are required; or

- b. Developments in technical knowledge or an assessment of risk relevant to the energy infrastructure network make it appropriate to revise the accepted Safety Case; or
- c. The LNO proposes a significant change to the SMSy specified in the accepted Safety Case. This would be likely to have a significant impact on the adequate management of risk, particularly where there are changes to the elements, operation, structure, governance and control arrangements, or accountabilities accepted by ESV.

ESV may also require a LNO<sup>18</sup> to revise and resubmit a Safety Case, largely in relation to (but without limitation by) the criteria outlined in section 6.3. LNOs must then comply with the specific requirements relating to redeveloping and resubmitting a Safety Case, including acting within specified timeframes and responding to ESV's requests for further information.

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<sup>18</sup> Section 109 of the ESA