

# Gas and Pipeline Infrastructure Safety Management Report

2016–17





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# Industry Overview



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## Director's report

This is now the fourth year that Energy Safe Victoria (ESV) has produced the Gas and Pipeline Infrastructure (GPI) Safety Management Report. Forming part of ESV's objective to deliver effective risk-based regulation, compliance and enforcement, the GPI Safety Management Report provides important information about the degree of technical compliance from gas and pipeline industry participants. This report also highlights the status of the sector's safety framework documentation, and its responses to auditing, monitoring, and reporting, and ESV's response in terms of its near-term priorities.

In the last three years, the GPI Safety Management Report has been a platform for comparative analysis, providing industry and government with a synopsis of safety performance throughout the gas and pipeline industry in Victoria. This year's report marks some important milestones.

This year's report includes a full disclosure of the industry participants involved. In line with the Minister's Statement of Expectations (delivered on 1 July 2016), ESV is committed to evidence-based reporting on its monitoring and compliance strategy.

In October 2017, the publication of interim findings from the *Review of Victoria's Electricity and Gas Network Safety Framework*, which included extensive consultation with industry stakeholders and ESV was released for public comment. Dr Paul Grimes, the author of the report, has already stressed the importance of publications like the GPI Safety Management Report and the role it will play in fulfilling ESV's function as technical and safety regulator for the Victorian gas and pipeline infrastructure sector.

ESV's role is to test, challenge and expose the extent to which industry participants are effectively managing their assets, which it undertakes via safety framework documentation assessments, field inspections, and strategic audits. But ESV also focuses on ensuring participants have robust self-assurance systems that provide practical information about effective risk management, and will impose proportionate enforcement action in instances where a participant is unwilling to acknowledge issues and respond appropriately.

The Grimes report also clearly acknowledged the need for safety regulators to focus on collating and analysing information to provide a leading indication about risk management system effectiveness. This approach, together with strengthening ESV's analytical capability to ensure more carefully targeted audits and inspections, will help to establish a much clearer set of safety management expectations for the entities ESV regulates.



**Paul Fearon**  
**Director of Energy Safety**

# General Manager's report

## (Gas and Pipeline Safety and Technical Regulation)

While no fatalities or serious injuries were recorded during the 2016-17 reporting period, the GPI Safety Management Report covers more than just safety outcomes, and in particular focuses on the mechanics and systems that provide assurance to ESV that risk is being effectively mitigated.

Throughout the year, ESV's audit program found several instances of maintenance and servicing functions being contracted to third parties with minimal supervision from asset owners. While there were no negative safety outcomes as a result, the ineffective imposition of contractor performance measures by pipeline licensees and gas companies is creating problems with asset management, and weakening the oversight necessary to provide the assurance ESV requires on behalf of the community.

Under Victorian legislation, gas companies and pipeline licensees remain responsible for their safety management and asset integrity obligations, and the oversight of servicing and maintenance in accordance with an established Safety Framework is a regulated entity's sole responsibility. Since 2012, however, ESV's field audits have revealed an increasing reliance on the use of contractors to perform asset maintenance, and systemic deficiencies in ensuring a consistent quality of work on those assets (which include City Gate and Field Regulator facilities, meter rooms, easements, and mains and services renewals). Training and competency audits have also demonstrated that minimum competency requirements among the three gas distribution businesses are not consistent, with contractor certification and refresher training often being assumed and not verified.

The Dromana to Rye pipeline strike provided an important example of an incident whereby third party interference might have been avoided had the licensee established effective performance measures and taken the necessary steps to assure itself that its operational functions were being discharged appropriately. Similar lessons can be learned from several instances of gas main and service installation and commissioning activities, where instances of non-compliant routine works (not identified as part of their own assurance processes) were brought to the asset owner's attention by ESV's inspectors.

While ESV is in a position to take enforcement action against contractors under certain circumstances, it is not ESV's role to monitor on behalf of a regulated entity where its operational functions are being appropriately managed. It is a regulated entity's responsibility to provide the necessary oversight and supervision of contractors working on their behalf. As a direct result, the oversight and supervision of contractors performing often safety critical functions on behalf of asset owners will be the focus of ESV's 2017-18 annual audit program.

In addition to targeted audits and inspections, ESV will also be strengthening its capability to identify emerging risks, as was identified by the *Review of Victoria's Electricity and Gas Network Safety Framework*. ESV is engaging with the sector to gain assurance that it is effectively identifying issues involving asset maintenance and third party interference and is developing effective responses. Among other measures, this includes improving ESV's Key Performance Indicator reporting to develop leading rather than lagging indicators, refining ESV's oversight of asset management reporting criteria for works such as direct and in-line inspections and corrosion protection reporting, and a continuing improvement process to collate information in a way that informs better risk-based regulatory decisions.



**Steve Cronin**  
**General Manager**  
**Gas and Pipeline Safety and Technical Regulation**



# 1. Introduction

Energy Safe Victoria (ESV) is the regulator responsible for the technical regulation and safety of Victoria's pipelines and electricity and gas sectors.

ESV's vision for Victoria is for community, industry and regulators to share a strong commitment to the safety of its pipelines, and the safe and efficient supply and use of electricity and gas for the benefit of the whole community.

By global standards, the Australian gas and pipeline industry has an excellent record of safety performance, monitoring and training<sup>1</sup>. While its primary role is to encourage compliance and improved safety performance throughout Victoria's pipeline, electricity, and gas sectors, ESV performs its functions and exercises its authority to achieve and maintain the objectives stated by the Electricity Safety Act 1998, the Gas Safety Act 1997, and the applicable objectives of the Pipelines Act 2005.

ESV also continues to focus attention on ongoing and long-term safety outcomes, while responding to emerging risks and issues via its accident prevention and compliance activities, educational initiatives, and cooperative partnerships. ESV's Corporate Plan and Annual Report also provide information about ESV's aims and objectives<sup>2</sup>.

In terms of ESV's broader functions, the Gas & Pipeline Infrastructure (GPI) Safety Section is responsible for the industry groups that are the subject of this report. These include natural gas transmission pipelines and non-natural gas pipelines, the Australian Energy Market Operator (AEMO), natural gas distribution, reticulated liquefied petroleum gas (LPG), landfill biogas, liquefied natural gas (LNG), compressed natural gas (CNG), and natural gas and LPG retailers.

## The GPI safety management report

The 2016-17 GPI Safety Management Report<sup>3</sup> (comprising the Licensed Pipelines, Non-licensed Gas Infrastructure, and Natural Gas Retail industry groups) delivers an overview of the industry's compliance when undertaking regulated activities by:

- providing information about safety performance trends over time
- informing Government and the community about compliance activities conducted by regulated entities
- assuring the community about ESV's role in exercising strategic leadership and facilitating safety compliance
- reporting on and evaluating the outcomes of risk-based regulation and taking proportionate enforcement action.

1 Victoria alone has over 5,000 kilometres of licensed pipelines transporting liquid petroleum, gas and other volatile products.

2 <http://www.esv.vic.gov.au/About-ESV/Reports-and-publications>.

3 Covering the reporting period from 1 July 2016 to 30 June 2017.

## 2. Ensuring compliance and the regulatory response

ESV's compliance and enforcement strategy has two limbs:

- encouraging and facilitating cooperation with organisations willing to comply
- taking proportionate enforcement action against organisations unwilling to comply.

ESV uses the enforcement pyramid; a regulatory approach advocated by Ayers and Braithwaite<sup>4,5</sup> for:

- selecting compliance tools for a particular task
- progressive escalation of compliance issues: educate, encourage, warn, and enforce.

Figure 2-1 shows the common representation<sup>6</sup> of the enforcement pyramid, which starts with education and escalates as necessary to prosecution.

**Figure 2-1 – The Enforcement Pyramid**



ESV follows a series of activities in line with each step and only escalates enforcement action where poor responses do not improve. Since the creation of the GPI Safety Section, ESV has concentrated on education and encouragement, which has mostly received a highly positive response.

### 2.1. Educate

#### Educate and maintain awareness of requirements

ESV maintains close contact with relevant regulators and industry associations to:

- actively communicate legislative requirements and changes to legislation through industry meetings and direct communication
- issue guidance material
- provide feedback to all regulated entities as part of its assessment of Safety Case and Safety Management Plan submissions
- work in partnership with regulated entities to address emerging risks and issues.

4 J. Braithwaite, Rewards and Regulation, Journal of Law and Society Volume 29, Number 1, March 2002, ISSN: 0263-323X pp 12-26.

5 Ayres & J Braithwaite, Responsive Regulation: Transcending the Deregulation Debate, Oxford University Press, New York, 1992.

6 The electricity, gas and pipeline sector compliance and enforcement tools available under the legislation administered by ESV vary from sector to sector.

## Industry consultation meetings

In November 2016, ESV met with representatives from the Licensed Pipeline, Non-licensed Gas Infrastructure, and Natural Gas Retail industry groups. The meetings focused on ESV's corporate restructure, as well as the current review of the Gas Safety (Gas Quality) Regulations, which will consider how effective the regulations are and the burden they currently impose. In relation to this review, the meetings also discussed the preparation of a regulatory impact statement for public comment that will:

- consider the problems the regulations seek to address
- engage key stakeholders and gas companies with statutory gas quality obligations
- identify feasible alternatives and options (including costs) for achieving the same objective.

ESV will be seeking further inputs by way of a questionnaire, which will be asking for information about the cost of compliance, as well as inviting stakeholders to make written submissions.

## 2.2. Encourage

### Foster and facilitate compliance

ESV actively engages regulated entities through compliance and field audits. Over the reporting period, ESV met with 44 organisations, and carried out 13 compliance audits, 66 verification audits, and 305 field audits. ESV also facilitates a process whereby audit recipients can prepare a plan to rectify any issues before formal enforcement action is taken. Three regulated entities undertook this course of action during the reporting period.

## 2.3. Warn

### Motivate immediate and ongoing compliance (formal warning and non-compliance notices)

Representing ESV's lowest enforcement level, warnings are most commonly issued for first offences where there are no serious consequences. Warnings can initially be verbal and are confirmed in writing with the regulated entity's relevant executive. Non-compliance notices, which detail compliance requirements, most commonly arise from inspections and audits.

## 2.4. Enforce

### Improvement, Infringement and Prohibition Notices, Official Warnings, and Directions

ESV issues Improvement Notices, Infringement Notices, Prohibition Notices, Official Warnings and Directions after a serious incident or risk to safety and specific action is required to avoid harm to people or to property.

Directions are issued for safety reasons and in emergencies. Improvement Notices are issued for contraventions of the Gas Safety Act and regulations, the Pipelines Act, and pipeline license conditions. Prohibition Notices are issued to gas companies and retailers for serious gas safety risks, and to pipeline licensees for serious risks to health, safety or the environment.

(A gas company may also be required to update its Safety Case or a pipeline licensee to update its Safety Management Plan for its continued acceptance.)

Penalties exist for failing to comply with these notices.

### Improvement Notices

Improvement Notices are used to stop ongoing or repeated breaches of the relevant Act or regulations.

ESV issued one Improvement Notice during the 2016-17 reporting period following an incident investigation involving an unodourised gas injection.

## **Infringement Notices**

Infringement Notices (or on-the-spot fines) can be issued for a range of offences against the Gas Safety Act and are a lower-cost alternative to prosecution for safety breaches.

The penalty for these types of offences is set at one-tenth of the maximum penalty prescribed in the Acts, which the recipient can elect to either pay within a set period or not pay and have the matter heard in court.

ESV issued three Infringement Notices during the 2016-17 reporting period relating to unauthorised excavation within three metres of a licensed pipeline.

## **Official Warnings**

An Official Warning (pursuant to the Infringements Act) can be issued as an alternative to an Infringement Notice (for offences that can be dealt with by Infringement Notice).

Official Warnings outline a breach, instruct the person or organisation to comply in the future, and warn about further enforcement action if there is a failure to comply.

ESV issued 14 Official Warnings during the 2016-17 reporting period relating to unauthorised excavation within three metres of a licensed pipeline and third party damage to gas mains and services.

## **Prohibition Notices**

Prohibition Notices are only issued when there is an imminent or immediately serious risk to health and safety.

ESV did not issue any Prohibition Notices during the 2016-17 reporting period.

## **Directions**

The Director of Energy Safety has the power to issue written directions to people or businesses to take particular actions to address safety issues.

At any time, the Director of Energy Safety may require the complete revision of a gas company's Safety Case or may determine and impose a Safety Case. This is a last-resort power enabling ESV to ensure network safety and continuity of supply to the community, and has the potential to be a more severe sanction than prosecution.

The Director of Energy Safety did not execute any directions during the 2016-17 reporting period.

## **2.5. Prosecute**

Prosecution usually occurs when there is significant risk, when harm has actually occurred or when an organisation is unwilling to comply, and can stem from any of the provisions applying to regulated entities.

ESV did not prosecute any regulated entities or infringing parties during the 2016-17 reporting period.

### 3. Reportable safety incidents

Reportable safety incidents are defined by the:

- Gas Safety (Safety Case) Regulations 2008
- Pipelines Regulations 2017.

All regulated entities are required to comply with the reporting requirements this legislation defines. ESV's decision to investigate an incident is informed by a number of factors, including the extent of injury, property damage, loss of supply, and the likelihood of safety action arising from the investigation.

Figure 3-1 shows the percentage of reportable incidents by category<sup>7</sup>. There were a total of 73 reportable incidents throughout 2016-17. While 14% of incidents reported to ESV led to an ignition, no deaths or serious injuries were reported.

While still hazardous, 'Fire, ignition' category incidents (often flowing from low pressure services) critically remain fewer in number than incidents where ignition does not occur, and represent a minority of all unplanned gas releases.

By contrast, the 10% 'Near miss, proximity' category, which relates to works being undertaken within three metres of a licensed pipeline, remains an ongoing focus for ESV, given ruptured transmission pressure pipelines also represent a potentially high-consequence outcome.

**Figure 3-1 – Reportable incidents by category**



<sup>7</sup> These represent incidents that are legally reportable. Other information is also reported to ESV, for example through KPIs.

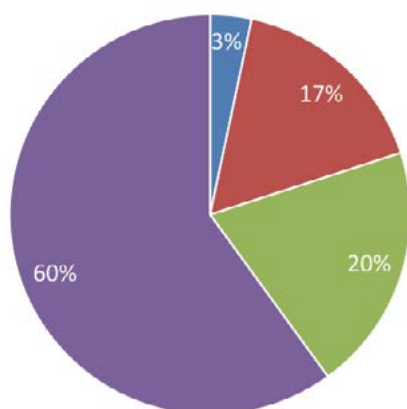
**Table 3-1 – Reportable incident category definitions**

Category	Definition
Near miss, proximity	Unauthorised excavation within three metres of a licensed pipeline.
Gas leak, escape	Unplanned gas release.
Fire, ignition	Unplanned gas release that ignites.
Unapproved installation	Gas installation that does not meet the prescribed Australian Standards.
Loss of gas supply	Interruption of supply customers.
Off-specification gas	Conveyance, supply or sale of gas that does not meet the minimum quality prescribed by the Gas Quality Regulations.
Pipe damage, no rupture	A hit on a main or service that damages the asset without causing an escape of product.

Figure 3-2 shows the percentage of reportable incidents by cause, established by conducting a root cause analysis of all reportable incidents and establishing a mode of failure.

**Figure 3-2 – Reportable incidents by cause**

■ Operation error      ■ Non-compliant installation  
■ Network integrity failure      ■ Third party



**Table 3-2 – Reportable incident by cause definitions**

Cause	Definition
Operation error	Misuse of operating system or failure to execute control mitigation procedures (for example, management of Supervisory Control and Data Acquisition).
Non-compliant installation	An installation that does not meet the prescribed Australian Standard (for example, a main-laying installation that does not comply with AS 4645).
Network integrity failure	Degradation of an asset or the inability for a system to deliver in its intended purpose (for example, ageing infrastructure that has become brittle resulting in ineffective joint seal).
Third party	Any individual or organisation that does not have a legal transaction with the relevant asset owner (for example, installation of electrical conduit within three metres of a licensed pipeline).

Sixty percent of incidents reported to ESV across all regulated industry groups are caused by third party interference incidents<sup>8</sup>. These include:

- unauthorised excavation within three metres of a licensed pipeline
- any incident involving damage to or contact with a licensed pipeline
- unauthorised works causing damage to natural gas distribution mains and services.

Historically, external mechanical interference has been the biggest threat to pipeline integrity and the environment if loss of containment occurs. As with all significant incidents, there may be a number of contributing factors that include pipeline licensees failing to execute external interference control, and a generally low level of community awareness about safe excavation around underground assets.

While the occurrence of incidents with relation to licensed pipelines remains low, ESV continues to focus on protecting licensed pipelines from third party interference. However, the most common third party interference involves unauthorised works damaging natural gas distribution assets. Incidents like this often involve mobilisation of emergency services, supply loss or (more significantly) burns if a gas ignition occurs.

ESV has commenced the Gas Asset Damage Mitigation Project to investigate this situation.

Network integrity failures are most frequently caused by:

- water in the mains
- corrosion of cast iron pipework
- broken gas mains and services.
- While network integrity failures sometimes lead to gas escapes and domestic supply disruptions, they are often well managed through ongoing maintenance programs.

<sup>8</sup> This relates to persons or entities that do not have a contractual arrangement with the asset owner.

## 4. Priorities and the strategic audit plan review

ESV annually reviews its priorities for the year ahead. In comparison with last year's strategic audit plan, the priorities for 2017-18 will include an increased focus on:

- natural gas distribution, and particularly the continuity of preventative maintenance and construction activities in accordance with the relevant Asset Management Plans
- the natural gas distribution and natural gas licensed pipeline industry groups, and specifically their contractor management and monitoring of safety performance measures in accordance with the relevant Safety Management Plans.

Along with immediacy and the potential consequences of risk, audit outcomes are used to inform judgments about compliance and enforcement action.

## 5. The structure of the GPI Safety Management Report

GPI Safety Management reporting involves three industry groups<sup>9</sup>.

- Licensed Pipelines (comprising natural gas transmission pipelines, non-natural gas pipelines, and the gas market operator (AEMO)).
- Non-licensed Gas Infrastructure (comprising natural gas distribution, reticulated LPG, LPG retail, landfill biogas, CNG, and LNG).
- Natural Gas Retail.

Each industry group report covers five main areas.

- Monitoring, auditing and inspections, which discusses ESV's activities and findings from monitoring the existence and efficacy of threat-barriers, including basic safety framework documentation, self-reporting and key performance indicators, and audit outcomes.
- Acceptances and approvals, which reports on the status of safety framework documentation (Safety Case) submissions and approvals and highlights any emerging issues.
- Education and partnerships, which discusses ESV's collaborative engagements with industry and the community to address emerging risks and facilitate safety outcomes via education and partnerships.
- Compliance and enforcement, which provides information about ESV's Compliance and Enforcement Policy and Compliance Strategy as well as any compliance and enforcement activities ESV was required to undertake.
- Focus and priorities for 2017-18, which discusses those areas within the industry group that ESV intends to prioritise for the coming year.

<sup>9</sup> For a comprehensive list of the entities ESV regulates within each industry group, see Section 1 of the relevant GPI Safety Management Report.



# Licensed Pipelines



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# 1. Introduction

## 1.1. The Licensed Pipelines Industry Group

The Licensed Pipelines Industry Group, involving licensed natural gas transmission pipelines, licensed non-natural gas pipelines, and the market operator is characterised by:

- a single large business operating the main Victorian natural gas transmission grid (APA VTS Australia (Operations) Pty Ltd)
- operational oversight from the Victorian market operator (AEMO)
- businesses operating other licensed natural gas transmission pipelines
- businesses operating other licensed pipelines (conveying non-natural gas product).

These entities all operate under an outcome-based regime that imposes a general duty to minimise risks to people, property and the environment, and must submit safety framework documentation including a Safety Case and/or a Safety Management Plan.

Table 1-1 lists the organisations in this industry group<sup>10</sup>.

**Table 1-1 – Licensed Pipelines**

Regulated entity	Pipeline licences
<b>Licensed natural gas transmission pipelines</b>	
APA VTS Australia (Operations) Pty Ltd	36, 50, 67, 68, 75, 78, 81, 91, 101, 107, 108, 112, 117, 120, 121, 122, 124, 125, 128, 129, 131, 132, 134, 135, 136, 141, 143, 145, 152, 155, 162, 164, 168, 171, 176, 178, 182, 202, 227, 231, 238, 252, 253, 266
APT Pipelines Limited (operated by APA VTS Australia)	255
Australian Gas Networks Limited	11, 43, 44, 49, 61, 62, 66, 85, 102, 103, 115, 137, 139, 167, 186, 187, 201, 206, 207, 208, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 222, 223, 224, 226, 267
AusNet Gas Services Pty Ltd	16, 17, 18, 19, 54, 57, 64, 76, 80, 82, 84, 90, 97, 99, 113, 184, 188, 189, 190, 191, 192, 193, 195, 196, 197, 198, 199, 200, 203, 221, 235, 256, 257
Gas Pipelines Victoria Pty Ltd	179
IPM Australia Ltd	234
Jemena <sup>1</sup>	232, 247
Multinet Gas <sup>2</sup>	28, 33, 40, 47, 51, 56, 77, 100, 142, 204, 205, 209, 210, 261, 265, 276
Origin Energy Resources Ltd (Bass Gas) <sup>3</sup>	244
South East Australia Gas (Mortlake) Pty Ltd	259
South East Australia Gas Pty Ltd	239
Tasmanian Gas Pipeline Pty Ltd	236
<b>Licensed non-natural gas transmission pipelines</b>	
Air Liquide Australia Limited	154, 160, 161, 173
BHP Billiton <sup>4</sup>	228
BOC Limited	87, 88, 89, 109, 110, 111, 127, 157
BP Australia Pty Ltd <sup>5</sup>	9, 22, 58, 59, 60

<sup>10</sup> These names reflect the situation as at 1 July 2016.

Regulated entity	Pipeline licences
Caltex Australia Petroleum Pty Ltd	23, 25, 26
Chemicals Australia Operations Pty Ltd	277
Coogee Energy Pty Ltd	158, 159
Elgas Ltd	172
Esso Australia Pty Ltd <sup>6</sup>	1, 2, 27, 34, 35, 39, 42, 46, 53, 63, 96, 98, 116, 126, 133, 149, 150, 233, 282
Exxon Mobil Aviation <sup>7</sup>	118, 119
Incitec Pivot Limited	104
Mobil Oil Australia Pty Ltd	283
Mobil Refining Australia Pty Ltd	37, 38, 55, 69, 70, 71, 72, 73, 74, 151
Origin Energy Resources Ltd (Bass Gas) <sup>3</sup>	243
Origin Energy Resources Ltd	237, 240, 250, 006009
Qenos Pty Ltd	130, 144, 258
Santos Ltd	251
Santos NT Ltd	230, 6238
Stolthaven <sup>8</sup>	138
United Terminals Pty Ltd	153
Viva Energy Australia Ltd <sup>9</sup>	3, 5, 6, 7, 8, 10, 65
Notes:	
1 Combines Jemena EGP and VicHub for reporting purposes.	
2 Combines Multinet Gas Distribution Partnership and MG (DB No1) and MG (DB No2) for reporting purposes.	
3 The sales gas pipeline (244) and raw gas pipeline (243) are covered by separate Safety Case and Safety Management Plans, respectively.	
4 Combines BHP Billiton Group and BHP Billiton Petroleum Pty Ltd for reporting purposes.	
5 License 58, 59, 60 form part of an industry joint-venture (JV) between BP Australia, Viva Energy Australia and Caltex Australia Petroleum. Viva Energy Australia currently manages the pipelines on behalf of the JV	
6 Includes Esso Australia Resources Pty Ltd for reporting purposes.	
7 Exxon Mobil Aviation is a representative of Mobil Oil Australia Pty Ltd, which shares a licence between a group of entities.	
8 Combines Stolthaven Coode Island Pty Ltd and Stolthaven Properties Pty Ltd for reporting purposes.	
9 Includes WAG Pipeline Pty Ltd.	

## 1.2. Licensed Pipelines Industry Group changes

Changes to the Licensed Pipelines Industry Group's licence holders during 2016-17 include the:

- surrender of Mobil Oil Australia Pty Ltd pipeline licenses 92, 93, 94 and 95
- acquisition of the Origin Energy Resources (Mortlake) license by South East Australia Gas (Mortlake) Pty Ltd.

## 1.3. Focus and priorities during 2016-17

ESV's focus during 2016-17 involved its ongoing five-yearly safety management framework documentation reviews, with a further focus on:

- environmental management frameworks to ensure risk management processes satisfy Australian Standards and comply with ESV-accepted compliance documentation
- emergency management preparedness and the appointment of competent personnel with specific responsibilities relating to incidents and emergencies.

## 2. Monitoring, auditing and inspections

### 2.1. Compliance documentation and key mandated requirements

Regulated entities are required to have a range of up-to-date compliance documents<sup>11</sup> that detail the entity's safety management framework, and provide a benchmark for ESV's ongoing compliance audits.

Compliance document types specific to this industry group include:

- Safety Cases and Safety Management Plans<sup>12</sup>
- as-built drawings and route plans
- formal delegations<sup>13</sup>
- Pipeline Integrity Management Plans and subordinate plans such as plans for repair and fracture control
- De-commissioning plans for suspension or abandonment<sup>14</sup>
- Emergency Response Plans.

#### 2.1.1. Compliance documentation

Safety Management Plan and Safety Case revisions are required to comply with the 2012 revision of AS 2885 (see Section 3.1 for more information about the status of these revisions).

Fifteen non-natural gas pipeline licensee<sup>15</sup> Safety Management Plan revisions were submitted for ESV's review during the 2016-17 reporting period. In addition to the compliance document guidelines previously issued to industry, this year ESV arranged for a specialist resource to facilitate the preparation of framework documentation. This was a significant success as evidenced by the improved quality of submissions received and general feedback from industry.

#### Emergency response exercises

Licensees are expected to undertake a minimum of two emergency response exercises in any (rolling) 12-month period, as indicated in the KPI template used by the industry group for safety performance reporting to ESV<sup>16</sup>.

Emergency response exercises and their corresponding reports are intended to demonstrate that:

- responsible persons, as identified in the endorsed Emergency Response Plan, will be directly involved in the exercise
- emergency response exercises (with supporting documentation) will reflect a realistic facility/pipeline incident event that tests response and recovery protocols
- emergency response exercise reporting will include 'lessons learned' recommendations and any actions to ensure ongoing improvement.

ESV increased its reviews of emergency response exercises, and the development of after-action review reports has noticeably improved.

#### 2.1.2. Annual safety and integrity performance reporting

As detailed by clause 11 (1) of the Pipelines Regulations 2007, licensees are required to report annually on their pipeline safety and integrity maintenance performance. This new reporting requirement was implemented following the pipelines regulations review, and 2017 will be the first year of its operation. ESV will gauge responses to this new requirement prior to consulting with industry and providing guidance material.

11 Legislation and Standards require that Safety Cases and Safety Management Plans are revised at least every five years to the satisfaction of ESV.

12 Natural gas transmission pipeline licensees generally have Safety Cases, and non-natural gas pipeline licensees have Safety Management Plans.

13 The person responsible for the operation of a facility as declared under the Gas Safety Act and in accordance with AS 2885.

14 De-commissioning Plans are required to be lodged with ESV if the pipeline will be maintained in a non-flowing condition for an extended period.

15 There are 21 non-natural gas pipeline licensees.

16 ESV does not count actual pipeline incidents as emergency exercises.

Table 2-1 lists the number of regulated entities by industry group that have submitted a Safety and Integrity Performance Report (as at 30 September 2017).

**Table 2-1 – Submitted Safety and Integrity Performance Report**

Licensed natural gas transmission pipelines	7	5
Licensed non-natural gas transmission pipelines	9	12

## 2.2. Self-reporting and KPIs

ESV has agreements with regulated entities (underpinned by legislation) to provide safety-related information, typically covering:

- incident statistics and unauthorised works within three metres of a licensed pipeline
- pipeline integrity management reporting
- periodic compliance reporting.

This information helps to evaluate progress towards achieving its Safety Case outcomes. See Section 5.1 for information about serious incident investigations that may lead to enforcement action.

### 2.2.1. Pipeline integrity management reporting

ESV receives information from a variety of sources including inspection reports, cathodic protection surveys, emergency response exercises, direct current voltage gradient (DCVG) or coating surveys, and dig-up verification programs. Reporting, however, can be inconsistent and ESV's Pipeline Information Management System (PIMS) facilitates information collation and identifies where follow-ups are required, as well as allowing for other information to be collected (such as the location class, remaining life reviews, and authorisations granted for third-party works within three metres of a pipeline).

#### Requirements to authorise works within three metres of a pipeline

Legislation identifies the following requirements for the authorisation of works within three metres of a pipeline:

- Gas Safety Act sections 79B, 79C and 79D prohibit persons from interfering with pipelines and from digging in the vicinity of gas pipelines without authorisation.
- Pipelines Act sections 117–120 prohibit persons from building structures (temporary or permanent) or digging near underground pipelines without authorisation, obstructing pipeline operations, or interfering with pipelines.

There are several critical considerations prior to issuing Ministerial consent:

- The licensee maintains '24/7' access to its facility.
- An emergency response plan approved by the licensee is in place with the encroaching asset owner.

See also Section 4.2 for information about new initiatives in this area.

#### Corrosion

The Electricity Safety Act 1998 (ESA) and the Electricity Safety (Cathodic Protection) Regulations 2009 regulate the mitigation of stray current corrosion. Pipeline and gas network owners subject to the Pipelines Act 2005 and the Gas Safety Act 1997 also have general safety duties that include protection from corrosion (including stray current corrosion).

Licensed pipeline cathodic protection reports are required every six months, or yearly in rural environments (with some historical legacy exceptions).

## 2.2.2. Periodic compliance reporting

ESV has an agreed reporting framework with the licensed natural gas transmission pipeline industry for the submission of quarterly Key Performance Indicator (KPI) reports, which are expected to be submitted to ESV within 20 business days of the end of the reported quarter.

Table 2-2 lists regulated entities that were late to submit KPI quarterly reports on more than one occasion during the 2016-17 financial year.

**Table 2-2 – Periodic KPI quarterly report late submissions**

Licensed natural gas transmission pipelines
None
Licensed non-natural gas transmission pipelines
Origin Energy Resources Ltd

## 2.3. ESV audits

### 2.3.1. Audit plans

ESV audits are designed to test compliance with Safety Cases and Safety Management Plans, in line with the risk-based strategic audit framework.

High-level audit findings are categorized in one of two ways:

- ‘Observations’ represent an isolated lapse or failure to comply with a specified requirement with the potential to lead to non-conformance and must be addressed within two months.
- ‘Non-conformances’ represent a failure to comply with specified requirements and must be addressed immediately or as otherwise agreed with ESV.

As per ESV’s audit practice:

- Auditees must provide formal notification when all audit findings have been addressed.
- An audit remains open until ESV is satisfied that the auditee has adequately addressed the audit findings.

An audit’s progress is also categorized in one of three ways:

- ‘In progress’ refers to a recent audit in the process of having a rectification plan agreed or audit findings rectified.
- ‘Incomplete’ refers to an old audit for which no evidence has been provided that the audit’s findings have been rectified.
- ‘Closed’ refers to an audit response that has rectified the audit’s findings.

### 2.3.2. Compliance audits

Compliance audits are systematic reviews of an entity’s safety management framework and are designed to ensure compliance with the specific requirements of that framework, legislative clauses, and Australian Standards.

Emergency management audits

Through its emergency management compliance audits, ESV was seeking assurance that licensees:

- have robust systems for ensuring that emergency personnel are fully aware of their obligations to ensure safety
- are aware of their requirements to collaborate with market participants, AEMO and ESV during certain emergency levels
- employ systems with sufficient redundancy to alleviate potential emergency scenarios and ensure asset owners operate facilities to a level of risk that is as low as reasonably practicable (ALARP).

ESV engaged a third party to assist with auditing Natural Gas Transmission Licensees and Natural Gas Distribution businesses for the 2016-17 audits. The program received positive feedback from industry about its efficiency.

This year's program was significantly influenced by incidents during 2016, including the injection of unodourised gas at the Bass Gas facility and damage to the Dromana to Rye transmission pipeline. As a result, the program's focus included the:

- assessment of emergency response protocols and procedures
- assessment of emergency response exercises
- exposure of crisis management teams to their Emergency Response Plans.

**Table 2-3 – Emergency management audits**

APA VTS Australia (Operations) Pty Ltd <sup>3</sup>	0	5	In progress
Australian Gas Networks Limited	0	5	In progress
AusNet Gas Services Pty Ltd	0	2	In progress
Gas Pipelines Victoria Pty Ltd	5	12	In progress
IPM Australia Ltd	0	5	In progress
Jemena	0	8	In progress
Multinet Gas	0	8	In progress
Origin Energy Resources Ltd (Bass Gas)	0	6	In progress
South East Australia Gas Pty Ltd	0	6	In progress
Tasmanian Gas Pipeline Pty Ltd	0	8	In progress
<b>Notes:</b>			
1 Lists the status as at 30 June 2017			
2 Audits commenced in June 2017			
3 This organisation incorporates APT Pipelines Limited.			

The audits generally identified:

- an absence of formal performance measures being developed for monitoring the Emergency Response Plan (ERP) effectiveness.
- gaps in identifying formal minimum competency and training needs for emergency responders identified by emergency/response organisation charts
- out-of-date emergency contact lists for key stakeholders
- ERPs that do not have response and recovery procedures to cover all pipeline-related emergency events (as per AS 2885, Section 11.1)
- ERPs not specifying processes and procedures for managing AEMO Load Curtailment instructions
- effective key performance measures for timely 'first on site' emergency responses
- effective documentation of key roles and responsibilities during an emergency.



### 2.3.3. Field audits

ESV's field audits focused on attendance to mechanical and coating repair programs, pipeline installation, and section replacement.

**Table 2-4 – Field audits**

Number of audits	Non-conformances	Stop work notice
238	2	0

The field audits resulted in two non-conformances:

- An unsafe excavation involving an undermined concrete slab and substructure with no trench support (asset owner: Viva Energy Australia Ltd). Personnel were not observed in the trench and remediation was undertaken to secure the site.
- Welding operations completed prior to welding qualifications being approved by ESV (asset owner: Mobil Refining Australia Pty Ltd). The non-compliance was raised with representatives from the licensee and suitably addressed.

Where a serious breach occurs or safety is threatened, unless immediately rectified, the construction or excavation activity may be directed to stop and escalated as appropriate.

### 2.3.4. Verification audits

Where necessary, ESV may conduct a verification audit to ensure audit findings have been satisfactorily rectified and action plans closed out. Alternatively, submitting evidence to justify the closure of an audit may be deemed sufficient.

#### External interference (third-party interference) audits

Six verification audits from the 2014-15 external interference (third-party interference) audit program have been finalized and all outstanding audit findings have been addressed.

#### Special crossing audits

Eight verification audits from the 2014-15 special crossing audit program have been finalized and all outstanding audit findings have been addressed.

### 2.3.5. Responses to audits

During the 2014-15 reporting period, ESV raised the issue of inspectors not being provided with drawings in preparation for a site inspection, and licensees requiring but not providing specialized personal protection equipment (PPE) for site visits (or providing ESV with advance notice of the requirement). ESV is now satisfied with the cooperation of licensees when it comes to site access and inspections<sup>17</sup>, and there has been a considerable improvement in work-site compliance, in particular involving site preparation, excavation, and compliance with approved procedures. There have also been significant advances in the openness of work-site supervisors and licensee representatives.

<sup>17</sup> While ESV may carry out site inspections at random and at its own discretion, ESV endeavours to make prior arrangements.

## 3. Acceptances and approvals

### 3.1 Safety Management Plan and Safety Case acceptance

Legislation requires Safety Cases and Safety Management Plans<sup>18</sup> to be revised at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure the content and quality of their submissions are appropriate for a particular facility, significantly reducing the number of re-submissions required before acceptance is given<sup>19</sup>.

Table 3-1 lists the Safety Case lodgment status as at 30 June 2017.

Table 3-2 lists Safety Management Plan revision acceptance as at 30 June 2017.

**Table 3-1 – Safety Case acceptance (licensed natural gas transmission pipelines and the Market Operator)**

Licensed natural gas transmission pipelines, market operator	Date last accepted	Next revision submitted	Overdue for acceptance <sup>1</sup>
Multinet Gas	19-Dec-06	Yes	Yes <sup>2</sup>
APA VTS Australia (Operations) Pty Ltd	27-Aug-09	Yes	Yes
Origin Energy Resources Ltd (Bass Gas)	14-Apr-10	Yes	Yes
AusNet Gas Services Pty Ltd	24-May-10	Yes	Yes
Australian Gas Networks Limited	02-Aug-10	Yes	Yes
South East Australia Gas (Mortlake) Pty Ltd	07-Feb-11	Yes	Yes
APT Pipelines Limited (operated by APA VTS Australia)	06-Jul-11	Yes	Yes
Gas Pipelines Victoria Pty Ltd	21-Dec-11	Yes	Yes
Tasmanian Gas Pipeline Pty Ltd	28-Jun-13	No	No
Jemena	04-Jul-13	No	No
IPM Australia Ltd	09-Jul-13	No	No
South East Australia Gas Pty Ltd	14-Mar-14	No	No
Australian Energy Market Operator Limited	08-Dec-15	No	No

Notes:

- Submitted documents might not have been accepted for a range of different reasons, from ESV not yet having reviewed the submission, through to deeming the submission unsatisfactory.
- This Safety Case was provisionally accepted on 6 October 2017.

<sup>18</sup> The requirement for an accepted Safety Management Plan for all licensed, non-natural gas pipelines came into effect with the introduction of the Pipelines Regulation in 2007, and 5-yearly revisions were subsequently submitted to ESV in 2012-13. All regulated entities that are yet to have their 5-yearly Safety Management Plan revision accepted are currently consulting (at a minimum) with ESV to develop a satisfactory submission.

<sup>19</sup> Gas companies declared under the Gas Safety Act or that hold a licence issued under Section 5 of the Gas Safety Act should be familiar with ESV's 2012 guidelines for the preparation of a Safety Case.

**Table 3-2 – Safety Management Plan revision acceptance (licensed non-natural gas pipelines)**

Air Liquide Australia Limited	✓	✓
BHP Billiton		
BOC Limited	✓	✓
BP Australia Pty Ltd		
Caltex Australia Petroleum Pty Ltd		
Chemicals Australia Operations Pty Ltd		
Coogee Energy Pty Ltd		✓
Elgas Ltd		
Esso Australia Pty Ltd		
Exxon Mobil Aviation	✓	✓
Incitec Pivot Limited	✓	✓
Mobil Oil Australia Pty Ltd		
Mobil Refining Australia Pty Ltd		
Origin Energy Resources Ltd (Bass Gas)		
Origin Energy Resources Ltd		
Qenos Pty Ltd	✓	✓
Santos Ltd		
Santos NT Ltd		
Stolthaven		
United Terminals Pty Ltd		
Viva Energy Australia Ltd <sup>4</sup>	✓	
Notes:		
1 A tick denotes acceptance of the relevant compliance documentation.		
2 This function has now been delegated to DELWP (effective from 1 July 2017) and will no longer be included in ESV reports.		
3 Submitted documents might not have been accepted for a range of different reasons, from ESV not yet having reviewed the submission, through to deeming the submission as being unsatisfactory.		
4 Acceptance of this revised Safety Management Plan specifically relates to PL-65.		

### 3.1.1. Safety Management Plan and Safety Case issues

Licensees are generally well-versed in conducting and documenting risk assessments, identifying threats, and determining risk mitigation measures. ESV continues to engage with licensees to ensure that only threats and physical/procedural controls relevant to a specific facility are being described in Safety Framework documentation. In each case, this is being followed up directly with the responsible entity.

Issues involving Safety Management Plans and Safety Cases involve:

- suspended pipelines
- Safety Management Plan and Safety Case production.

## Suspended pipelines

ESV is continuing to work with licensees with suspended pipelines to ensure that Australian Standards are being met.

Licensees that have suspended pipelines often have the original product replaced with water (coupled with a corrosion inhibitor) or an inert gas. However, where a suspension is of long standing<sup>20</sup>, the pipeline is significantly degraded, and the licensee has no suspension plan, the pipeline must:

- be returned to its required state under the licence, or
- have its license surrendered.

## Safety Management Plan and Safety Case production

Specific concerns involving the production of Safety Management Plans and Safety Cases include:

- a failure to adapt legislative requirements to meet conditions peculiar to the operation of particular facilities or organisations
- documentation that, despite being submitted under senior management signature, does not comply in terms of quality or detail, raising concerns about senior management oversight of its production.

ESV's response to these production issues is to meet with licensees and make them aware that the safety management framework needs to:

- be specific to the operation of the facility (or organisation)
- meet Australian Standards
- meet the regulatory requirements as administered by ESV.

ESV will not accept safety framework documentation that does not meet these criteria.

### 3.1.2. Pipeline Integrity Management Plan issues

General issues relating to the submitted Pipeline Integrity Management Plans include:

- assessment methods often being documented as per AS 2885.3 Table 9.2 "Typical assessment methods" but not stating the method that has been used
- not using corrosion rates to justify inspection frequencies
- lack of validating indirect inspection methods through verification dig-ups.

### 3.1.3. Repair Plan issues

Specific issues relating to the submitted Repair Plans include:

- having a clearly documented methodology for each type of repair
- describing the process for assessing anomalies and the criteria used to determine a defect
- specifying the Australian Standards for surface finish and holiday testing<sup>21</sup> that ensure coating integrity
- specifying the use of the international standards adopted for defect assessment
- clearly classifying the repair methods that apply to leaking and non-leaking defects
- describing the limits to which grinding can be used to address either anomalies or various defect types (for example, how the amount of ground material removed is determined to be acceptable, when repair sleeves are to be used, how non-destructive testing (NDT) requirements are to be assessed, how heat input and grooving is to be controlled, and what constitutes a grinding defect)
- identifying how the conditions of a license are reviewed after repairs are undertaken, and how the parameters are subsequently varied.

20 AS 2885.3 states that the period of suspension should not be longer than 18 months if the fluid is water, but licensees have not been advising DELWP of a license alteration or submitting suspension plans to ESV prior to suspending a pipeline. The Australian Standard also states that licensees should review the suspended state annually, and ESV has not been informed of a review in most cases. ESV is aware of 17 suspended licensed pipelines.

21 A non-destructive test method applied to protective coatings to detect unacceptable discontinuities like pinholes and voids.

### **3.1.4. Emergency Response Plan issues**

Specific issues relating to the submitted Emergency Response Plans include:

- not describing the availability of certified emergency equipment, pipe and fittings
- omitting response and recovery plans for varying situations, which as a minimum are specified in AS 2885.3 Section 11.1
- not addressing the measurement length<sup>22</sup> and the affected area.

### **3.2. Operational works approvals**

ESV's audit activities included the review and acceptance of project-specific Construction Safety Management Plans (for licensed pipeline alteration and construction), Consents to Operate (for commissioning of licensed assets) and for third party proposed construction works within three metres of a licensed pipeline. Decommissioning Works Plans and Repair Works are also lodged for review with ESV.

ESV's timely processing of submissions is greatly improved by:

- multiple iterations/versions being change tracked so changes can be easily found
- complicated submissions requiring multiple stages being accompanied by a covering letter that fully explains the submission's scope, to enable ESV to identify the appropriate approvals process.

Table 3-3 lists Construction Safety Management Plans reviewed and accepted by ESV.

Table 3-4 lists Consent to Construct applications (within three metres of a pipeline) reviewed and accepted by ESV on behalf of the Minister.

Table 3-5 lists Consent to Operate applications reviewed and accepted by ESV on behalf of the Minister.

<sup>22</sup> The affected area in the event of an ignition.

**Table 3-3 – Construction Safety Management Plan acceptances (Construction – Alteration to License)**

APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase A (Euroa and Wollert Compressor Station)	101
APA VTS Australia (Operations) Pty Ltd	Dandenong Pig trap installation	129
APA VTS Australia (Operations) Pty Ltd	Pakenham CTM	75
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase B (Wollert Compressor Station and Barnawartha City Gate)	101 and 178
AusNet Gas Services Pty Ltd	Regulator upgrade at Bendigo City Gate	189
AusNet Gas Services Pty Ltd	Field regulator installation at Coburns Road	90
AusNet Gas Services Pty Ltd	Regulators replacement project at Corio City Gate	57
Australian Gas Networks Limited	Pakenham City Gate	217
Gas Pipelines Victoria Pty Ltd	Avoca City Gate	179
Mobil Oil Australia Pty Ltd	Yarraville jet fuel pipeline	283
Mobil Refining Australia Pty Ltd	Pipeline alteration project at Holden Dock	37
Multinet Gas	Heater installation at Lang Lang City Gate	265
Multinet Gas	Pig traps modifications	261
Multinet Gas	Highett regulator station relocation	56
Santos NT Ltd	Sole pipeline (HDD section)	6238

**Table 3-4 – Consent to Construct (within three metres of a pipeline) acceptances (dispensation)**

Mobil Oil Australia Pty Ltd	Installation of support piles and construction of a pipe pit	-1
Notes:		
1 These works impact multiple pipeline licences.		

**Table 3-5 – Consent to Operate Plan acceptances**

Air Liquide Australia Limited	Pig traps modifications	261
APA VTS Australia (Operations) Pty Ltd	TGP-VTS Interconnect Project (DN300 section and TSF only)	120
APA VTS Australia (Operations) Pty Ltd	TGP-VTS Interconnect Project (DN250 section)	120
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase B (Wollert PRS, Spool A)	101 and 178
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase B (Wollert CS, Spool B)	101 and 178
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase B (Barnawartha CG, Spool 1034)	101 and 178
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase B (Barnawartha CG)	101 and 178
APA VTS Australia (Operations) Pty Ltd	Fuel gas line replacement at Wollert Compressor Station	101
APA VTS Australia (Operations) Pty Ltd	Station modification at Euroa compressor Station	101
APA VTS Australia (Operations) Pty Ltd	VNIE Loop 6A	101
APA VTS Australia (Operations) Pty Ltd	VNIE Loop 6B	101
APA VTS Australia (Operations) Pty Ltd	VNIE Loop 7A & 7C	101
APA VTS Australia (Operations) Pty Ltd	VNIE Loop 7B	101

Pipeline licensee	Project name	Licence number
APA VTS Australia (Operations) Pty Ltd	VNIE Line Valve 6	101
APA VTS Australia (Operations) Pty Ltd	VNIE Facility Modification – Phase A (Euroa and Wollert Compressor Station)	101
APA VTS Australia (Operations) Pty Ltd	Pipeline lowering at Indigo Creek	101
APA VTS Australia (Operations) Pty Ltd	CTM upgrades at Noble Park and St Kilda East	36
APA VTS Australia (Operations) Pty Ltd	Dandenong Pig trap installation	129
APA VTS Australia (Operations) Pty Ltd	GEA guel gas upgrade at Gooding Compressor Station	75
APA VTS Australia (Operations) Pty Ltd	Metre replacement at Hoppers Crossing	81
AusNet Gas Services Pty Ltd	Regulators replacement project at Corio City Gate	57
AusNet Gas Services Pty Ltd	Regulator upgrades at Diggers Rest City Gate	191
AusNet Gas Services Pty Ltd	Regulator upgrades at Sydenham City Gate	191
AusNet Gas Services Pty Ltd	Regulator upgrade at Bendigo City Gate	189
Australian Gas Networks Limited	Heater installation at Wangaratta City Gate	220
Australian Gas Networks Limited	Heater and regulator upgrade at Whittlesea City Gate	211
Australian Gas Networks Limited	Pipeline lowering at Indigo Creek	101
Australian Gas Networks Limited	Isolation valve and field regulator replacement at Watsonia Road	201
Australian Gas Networks Limited	Permanent repair at Dromana	167
Elgas Ltd	Pig traps modifications	172
Esso Australia Pty Ltd	LFD valve replacement	27
Exxon Mobil Aviation	Interconnect hot tap fitting installation	118
Gas Pipelines Victoria Pty Ltd	Avoca City Gate	179
IPM Australia Ltd	Pig traps modifications	234
Mobil Refining Australia Pty Ltd	Pipeline alteration project at Holden Dock	37
Mobil Refining Australia Pty Ltd	Replacement program Section 1	73
Mobil Refining Australia Pty Ltd	Replacement program Section 2	73
Multinet Gas	Heater installation at Lang Lang City Gate	265
Multinet Gas	Valve replacement at Cadbury	28
Origin Energy Resources	Halledale Blackwatch & Speculant Pipeline	6009
Qenos Pty Ltd	MIJ installation	130
Santos NT Ltd	C&I metre replacement at Esso Long Island Point	6238
Tasmanian Gas Pipeline Pty Ltd	TGP interconnect hot tap fitting installation	236
Viva Energy Australia Ltd	WAG & WOPL replacement program	65 and 7

### **3.2.1. Safety Management Plans (construction and repair)**

Prior to acceptance, all alteration, construction and repair projects undergo thorough and (where necessary) repeated reviews, and ESV's field audits during installation and commissioning generally find they comply with the accepted Construction Safety Management Plan.

#### **Construction Safety Management Plan issues**

In some cases, Construction Safety Management Plans have been insufficiently reviewed prior to submission, with issues that include:

- missing supporting documentation (for example, hydro test reports)
- conformance certificates endorsing the pipeline/spool/equipment integrity referencing incorrect standards, drawing numbers, test pressures, or test durations
- errors in commissioning procedure step sequences
- documents referencing the wrong project.

Construction Safety Management Plan contractor management issues (mainly involving processes for monitoring and auditing contractor work, performance and compliance) include:

- changing the nominated welder/welding procedure specification identified in the accepted Construction Safety Management Plan, with the pipeline licensee only being made aware of the changes prior to commissioning
- errors in hydro testing shop-fabricated spools/skids, where the contractor failed to comply with the testing duration in accordance with the prescribed standard requested by the licensee<sup>23</sup>
- the traceability of valve material certificates (with no certificate found on valves supplied for a given valve replacement project)
- incorrect hot tap fittings installed (welded), with the pipeline licensee only being made aware after the completion of longitudinal welds
- coating repair work being completed (and fully backfilled) before conducting a magnetic particle inspection, which resulted in re-excavation of the pipeline.

#### **Pressure testing the new looping section for the Victoria Northern Interconnecting Expansion (VNIE) project PL101**

APA GasNet (Operations) Pty Ltd (the licensee) is constructing and commissioning a new section of licensed pipeline to add capacity to the existing licensed pipeline (PL-101). Following pressure testing of the new looping section, the licensee engaged an independent expert to review historical pressure test data. ESV is now seeking assurance that the pipeline integrity has not been affected by the pressure test. The VNIE project is expected to run until at least the end of 2017.

<sup>23</sup> This is also an issue associated with the pipeline licensee's internal review processes/checks prior to submission, given the pipeline licensee was made aware of the non-compliance by ESV.



## **4. Education and partnerships**

### **4.1. Ongoing initiatives**

#### **4.1.1. Pipeline land use management**

In March 2017, a report produced by the Major Hazard Facility (MHF) advisory committee was published that addressed ongoing issues involving land development around pipelines, and pipeline encroachment statutory planning mechanisms. The report recommended that the issue be addressed through the appointment of a new committee to specifically consider how pipelines are recognised in the Victorian planning system.

A Government response is anticipated by early 2018.

#### **4.1.2. Gas Quality Regulations**

ESV administered the Gas Safety (Gas Quality) Regulations reset in 2017 (which are now in effect) and is now administering the reset of the Gas Safety (Safety Case) Regulations, which end in 2018.

#### **4.1.3. The transfer of environmental responsibility to DELWP**

Plans to consolidate the administration of environmental management requirements (as per the Pipelines Act 2005) under the Department Of Environment, Land, Water and Planning (DELWP), involving Environmental Management Plan administration and annual Environmental Protection Performance Reports, came into effect on 1 July 2017.

#### **4.1.4. Changes to the Pipeline Regulations**

A number of stakeholder consultation meetings and workshops were hosted by DELWP (and supported by ESV) to communicate changes to the Pipelines Regulations, which came into force in March 2017 (replacing the Pipelines Regulations 2007). The main changes involve:

- pipeline license applications (now requiring extra information about environmental, social and safety impacts)
- pipeline authorised route change applications (a fee now applies)
- conditions of license (new conditions apply)
- Environmental Management Plans (now requiring extra information and a lodgement fee )
- Safety Management Plans (extra information is required)
- decommissioning plans (now requiring a description of the decommissioning works and a lodgement fee)
- environmental and safety reporting (which must be lodged within a set timeframe).

### **4.2. New initiatives**

#### **4.2.1. Dispensation to construct within three metres of a pipeline**

Construction work proposals in the vicinity of licensed pipelines have increased significantly over the last five years, with many proposals involving construction within three metre restricted zones. This is principally driven by state infrastructure projects, which by their nature are linear, crossing the linear network of licensed pipelines a number of times. S120(1) of the Pipelines Act 2005 makes it an offence to construct a building within three metres of a licensed pipeline without the Minister's prior consent.

In light of a series of upcoming state infrastructure projects (for example, the Western Distributor Project, Level Crossing Removals, and upgrades to Thompsons Road and Lyndhurst Road), ESV's position has been reviewed for regulatory efficiency and effectiveness. In addition, ESV is working with DELWP to ensure works are identified ahead of time and that regulatory requirements are met without delaying projects.

#### **4.2.2. KPI reporting review**

ESV and the Licensed Pipelines Industry Group (Natural Gas Transmission) are adopting a more proactive approach to monitoring and managing Victoria's natural gas transmission pipeline assets.

ESV currently collects lagging indicator<sup>24</sup> data, which to date has only provided outcome-based reporting. Leading indicators, however, enable a greater level of assurance by helping to identify potential issues before they occur.

As a result, a need has been identified for a series of leading indicators that will provide an ongoing and proactive signal about natural gas transmission pipeline system safety, integrity, and possible risk. ESV has collaborated with stakeholders to develop a list of KPIs that provide a snapshot of pipeline safety and integrity trends rather than relying on outcome-based reporting. The review will also be applied to the Licensed Pipelines Industry Group (Non-Natural Gas Transmission).

#### **4.2.3. Corrosion protection reporting**

ESV is reviewing the way corrosion protection is being reported<sup>25</sup> with the aim of developing a more concise corrosion protection guideline and reporting mechanism. The review is also aiming to reduce the existing regulatory burden while ensuring ESV:

- receives assurance about effective integrity management
- can effectively challenge findings and compliance through improved oversight.

#### **4.2.4. Notification process for inspection and repair work**

ESV has reviewed and redrafted a guideline for notification about planned and unplanned work on licensed pipelines to limit it to works not requiring a license alteration. This includes verification and direct inspection (dig-ups), mechanical reinforcement repairs, and grinding repairs. The new draft guideline is aimed at:

- defining the reporting requirements of works that are accepted (in line with relevant legislation)
- reducing the existing regulatory and administrative burden.

The draft guideline will be released for consultation during the first half of 2018.

<sup>24</sup> Occurring after the event, examples include death or injury.

<sup>25</sup> Licensees are currently required to submit corrosion protection reports for above ground pipelines every 6 or 12 months (depending on the pipeline's location classification).

## 5. Compliance and enforcement

ESV's Compliance and Enforcement Policy and Compliance Strategy are designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the Energy Safe Victoria Act 2005, the Electricity Safety Act 1998, the Gas Safety Act 1997, and the Pipelines Act 2005.

To date, the vast majority of ESV's activity has been in cooperation with regulated entities, which in most instances have responded promptly and effectively. Where this is not the case, ESV takes firmer compliance action.

### 5.1. Incident investigation outcomes

Statistically, the greatest cause of all pipeline failures is external mechanical interference, which continues to be ESV's most investigated issue. Through these investigations, which can lead to prosecutions, Infringement Notices, or Official Warnings, contractors are being made increasingly aware that pipeline strikes, unauthorised encroachments and near-misses have consequences for them as well as for public safety.

#### Incident reporting

ESV has valued the efficiency and openness demonstrated by responsible parties when they have reported incidents not otherwise defined as reportable by legislation. This information adds to ESV's data collection and helps to drive ESV's audit planning.

#### Loss of containment

One loss of containment incident from a licensed pipeline was reported during 2016-17.

On 28 September 2016, Licensed Gas Transmission Pipeline 167 (PL-167), transporting natural gas from Dromana to Rye, was struck and ruptured near the Arthurs Seat Road at Arthurs Seat. While there were no injuries or supply losses, a significant release of gas occurred (approximately 52,000 cubic metres) and emergency services were on site for the duration of the incident, causing significant disruption to the immediate area.

The investigation resulted in the issue of an Infringement Notice, an Improvement Notice, and a warning letter. More information about the outcomes of this incident will be published in the 2017-18 GPI Safety Management report.

#### Gas quality

While a series of gas quality excursions were reported by AEMO, ESV did not investigate any gas quality incidents during the 2016-17 reporting period, but one incident from the previous reporting period was finalised.

In the 2015-16 reporting period, a gas quality incident was reported involving gas at Origin Energy's Lang Lang facility being injected without a gas odorant. The investigation was completed on 30 June 2016. A Show Cause letter was issued to Origin Energy on 17 August 2016. On 3 October 2016, ESV carried out the first of a two-part verification audit to establish satisfactory completion of Origin Energy's proposed corrective action, and verified completion of all outstanding items. On 23 January 2017, ESV formally notified Origin Energy that no further action was required and the matter was closed.

In September 2016, ESV issued an Improvement Notice to Multinet Gas, which included installation of a SCADA low sulphur alarm. In March 2017, ESV carried out a verification audit of Multinet Gas's response and verified completion of all outstanding items.

#### Unauthorised works within three metres of a licensed pipeline

Table 5-1 lists incidents involving unauthorised excavation within three metres of a licensed pipeline investigated during 2016-17.

**Table 5-1 – Unauthorised excavation within three metres of a licensed pipeline**

Australian Gas Networks Limited	167	Licensed pipeline damaged by third party	28-Sep-2016	In-progress <sup>2,3</sup>
AusNet Gas Services Pty Ltd	19	Unauthorised excavation within three metres of a licensed pipeline	29-Apr-2017	Warning Letter <sup>4</sup>
Australian Gas Networks Limited	61	Unauthorised excavation within three metres of a licensed pipeline	15-May-2017	Infringement Notice <sup>5</sup>
Viva Energy Australia Ltd	8	Unauthorised excavation within three metres of a licensed pipeline	29-May-2017	Infringement Notice
Viva Energy Australia Ltd	7	Unauthorised excavation within three metres of a licensed pipeline	26-Jun-2017	Closed without enforcement action

**Notes:**

- 1 This represents action taken by ESV against a third party (not the licensee).
- 2 Enforcement action pending. Details will be included in the 2017-18 GPI Safety Management Report.
- 3 See the section on 'Loss of containment' for more information about this incident.
- 4 An infringement notice was issued for repeating the offence on 29-5-2017 in proximity of PL8.
- 5 Two Infringement Notices were issued.

ESV's monitoring and investigation strategy focuses on ensuring regulated entities manage their compliance with Section 7 of AS 2885.3-2012 involving:

- third-party pipeline awareness (for example, liaison programs with community, councils, landowners, and emergency services)
- external interference detection (pipeline patrolling, Dial Before You Dig services, and reporting to ESV for investigation where necessary)
- external interference control (for example, controlling activities near pipelines and reviewing third-party work proposals and encroachment/location classes), including issuing effective Conditions of Work and authorising proposed third-party work in accordance with Section 118 of the Pipelines Act 2005.

## 6. Focus and priorities for 2017-18

ESV's focus and priorities for 2017-18 will include auditing contractor management, and in particular that pipeline licensees ensure:

- that contractors clearly understand the obligations the licensee is required to meet and have established processes in place to provide such assistance.
- critical oversight of contracts for safety and integrity related functions
- key performance measures are being set
- monitoring and auditing of contractor and service provider management.

# **Non-licensed Gas Infrastructure**



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# 1. Introduction

## 1.1. The Non-licensed Gas Infrastructure Industry Group

The Non-licensed Gas Infrastructure Industry Group, involving natural gas distribution, reticulated LPG and LPG retail, landfill biogas, LNG and CNG, comprises companies that operate:

- the distribution networks that reticulate natural gas (including CNG) supplied from the transmission system to customers and distribution pipelines
- landfill and biogas pipelines from capture points to power generation facilities
- LPG reticulation networks supplying gas to small communities and subdivisions
- storage and handling facilities at LPG depots
- LNG off-network supplies to customers at dedicated industrial and commercial sites

Table 1-1 lists the organisations in this industry group<sup>26</sup>.

**Table 1-1 – Non-licensed Gas Infrastructure**

<b>Natural gas distribution</b>
AusNet Gas Services Pty Ltd
Australian Gas Networks Limited
Enwave Regional Energy (Victoria) Pty Ltd
Enwave Victorian Networks Pty Ltd
Multinet Gas Distribution Partnership
<b>Reticulated LPG</b>
AusNet Gas Services Pty Ltd
Elgas Ltd
Indigo Shire Council
Mount Hotham Alpine Resort Management Board
Westport Region Water Corporation
<b>Landfill biogas and LNG</b>
AGL Energy Sales & Marketing Limited
City of Whittlesea
Clean Energy Distribution Pty Ltd
Energy Developments Limited
<b>LPG retailers</b>
Elgas Ltd
Origin Energy (LPG) Limited
Supagas Pty Ltd
Vic LPG

## 1.2. Non-licensed Gas Infrastructure Industry Group changes

Changes to the Non-licensed Gas Infrastructure Industry Group's licence holders during 2016-17 involved Brookfield Regional Energy (Victoria) Pty Ltd and Brookfield Regional Networks Pty Ltd, which have changed name to Enwave Regional Energy (Victoria) Pty Ltd and Enwave Victorian Networks Pty Ltd, respectively.

<sup>26</sup> These names are accurate as at 1 July 2016.

### **1.3. Focus and priorities during 2016-17**

During 2016-17, ESV focused on closing any audit actions from the 2014-15 and 2015-16 reporting periods via its ongoing program of verification audits. ESV also undertook a series of audits involving natural gas distribution that focused on training and competency compliance.

During the year, ESV also completed:

- three training and competency compliance audits
- sixty-six City Gate and Field Regulator verification audits.

ESV also addressed audits for facilities (meter rooms and mains renewal audits in particular) that have remained incomplete since 2012, with a focus on:

- audit finding rectification
- examining the cause of delays in addressing non-conformances and observations.

See Section 2 for information about the findings from the 2016-17 audit program.



## 2. Monitoring, auditing and inspections

### 2.1. Compliance documentation, self-reporting and KPIs

ESV has agreements with regulated entities (underpinned by legislation) to provide safety-related information, typically covering:

- mains renewal programming and progress
- incident statistics, including reports of damage to infrastructure, near misses, and interruptions to supply
- inspections, audits, and unauthorised third-party encroachment
- regular periodic compliance reporting.

This information helps to demonstrate compliance with legislation and standards as well as identifying potential improvements in dealing with actual incidents. See Section 5.1 for information about serious incident investigations that may lead to enforcement action.

#### 2.1.1. Incident statistics

##### Third-party damage

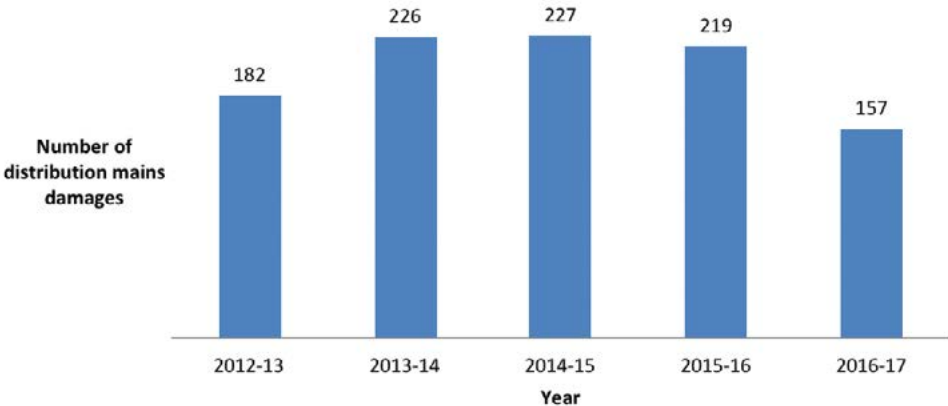
While ESV has no record of major injury or property damage as a result of ruptures to mains and services, a review of data from the last ten years has shown no substantive reduction in ‘hits’. ESV initiated a review (the Gas Asset Damage Mitigation Project) to identify systemic opportunities to substantially reduce the damage to assets, in particular addressing hits on services, and repeat offenders were interviewed and issued with warning letters. In addition, ESV has partnered with the distribution businesses and some contractors to assess the effectiveness of mitigation measures.

ESV has investigated, or is in the process of investigating, 17 incidents involving gas mains and services damage. To date, this has resulted in 12 warning letters. ESV has also focused on the engagement and education of entities that work around gas assets. These entities include the Water Authorities Board and electricity distribution businesses. Figure 2-1 and Figure 2-2 show the damage trends for both mains and services since 2012-13. These trends indicate that the situation has improved but more work needs to be done.

##### Damage to mains

ESV recorded 157 incidents of third party damage to gas mains, which is lower than the three-year rolling average of 224 and the 219 incidents recorded during 2015-16.

**Figure 2-1 – Damaged mains (less than 1,050 kPa) since 2012-13**



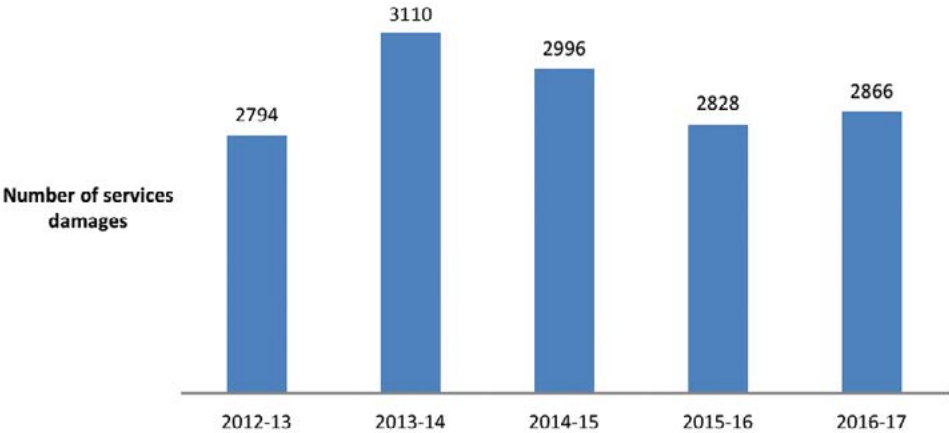
ESV has identified a series of issues that are contributing to the problem of damaged mains, including:

- inaccurate or inadequately detailed as-built drawings
- a lack of hand proving<sup>27</sup> to confirm the exact location of assets
- difficulty obtaining timely confirmation from asset owners about the location of assets
- the traceability of underground assets given a lack of tracer wire or training for personnel tasked with finding pipes and locating services.

**Damage to services**

Hits on services have not improved, with 2866 incidents recorded during the 2016-17 reporting period. This is higher than the 2828 incidents recorded during 2015-16.

**Figure 2-2 – Damaged services (less than 1,050 kPa) since 2012-13**



ESV has initiated the Gas Asset Damage Mitigation Project, which aims to identify the root causes of ‘hits’ on gas distribution assets. The reasons for the decline in incidents involving gas mains are also being investigated.

Factors that may contribute to reducing damage to services include:

- recording all as-built services on drawings
- meeting the minimum depth of cover
- providing clear separation between gas services and other utilities
- ensuring the installation of tracer wire on non-metallic pipes.

**Loss of supply**

There were 65 incidents of a loss-of-supply due to third-party damage that affected more than five customers. This is 33% higher than for the 2015-16 reporting period and higher than the rolling three-year average. ESV anticipates the incidents involving loss of supply will also be addressed by the Gas Asset Damage Mitigation Project.

27 Excavating around a pipe without the use of machinery.

### 2.1.2. Emergency response exercises

Regulated entities are expected to undertake a minimum of two emergency response exercises in any (rolling) 12-month period, as indicated in the KPI template used by the industry group for safety performance reporting to ESV<sup>28</sup>.

Emergency response exercises and their corresponding reports are intended to demonstrate that:

- responsible persons, as identified in the accepted Emergency Response Plan, will be directly involved in the exercise
- emergency response exercises (with supporting documentation) will reflect a realistic facility/pipeline incident event that tests response and recovery protocols
- emergency response exercise reporting will include 'lessons learned' recommendations and any actions that will need to be taken to ensure ongoing improvement.

ESV has increased its reviews of emergency response exercises and has seen improvement in the development of after-action review reports.

ESV did not receive reports from the Landfill, Biogas, LNG and LPG Retail industry group members and will be addressing this through consultation with representatives from the relevant businesses.

### 2.1.3. Mains renewal program statistics

In collaboration with the Australian Energy Regulator (AER), ESV is monitoring the progress of the current natural gas distribution business mains renewal program (from 2013 to 2017), and is in the process of establishing whether these businesses are focusing on the replacement of assets they undertook to replace in submissions to the AER.

The mains renewal process forms part of the overall asset maintenance plan, which is aimed at improving service continuity and supply.

### 2.1.4. Periodic compliance reporting

Agreements are in place with various regulated entities for the periodic submission of Key Performance Indicator (KPI) reports. KPI reports are expected to be submitted to ESV within 20 business days from the end of the quarter.

Table 2-1 lists the regulated entities that were late to submit KPI quarterly reports on more than one occasion during the 2016-17 financial year.

**Table 2-1 – Periodic KPI quarterly report late submissions**

<b>Natural gas distribution</b>
None
<b>Reticulated LPG</b>
Mount Hotham Alpine Resort Management Board
<b>Landfill biogas and LNG</b>
City of Whittlesea
<b>LPG retailers</b>
None

28 ESV does not count actual incidents as emergency exercises.

## 2.2. ESV audits

### 2.2.1. Compliance documentation

Regulated entities are required to have a range of up-to-date compliance documents<sup>29</sup> that detail the entity's safety management framework. These documents provide the basis for ESV's ongoing compliance audits.

Compliance requirements specific to this industry group include:

- Safety Cases
- as-built drawings and route plans
- Formal Delegations<sup>30</sup>
- Asset Management Plans
- Emergency Response Plans
- registration/procedures for Dial Before You Dig<sup>31</sup>.

### 2.2.2. Audit plans

ESV audit plans are designed to test compliance with Safety Cases, in line with the risk-based strategic audit framework.

High-level audit findings are categorized in one of two ways:

- 'Observations' represent an isolated lapse or failure to comply with a specified requirement with the potential to lead to non-conformance and must be addressed within two months.
- 'Non-conformances' represent a failure to comply with specified requirements and must be addressed immediately or as otherwise agreed with ESV.

As per ESV's audit practice:

- Auditees must provide formal notification when all audit findings have been addressed.
- An audit remains open until ESV is satisfied that the auditee has adequately addressed the audit findings.

An audit's progress is also categorized in one of three ways:

- 'In progress' refers to a recent audit in the process of having a rectification plan agreed or audit findings rectified.
- 'Incomplete' refers to an old audit for which no evidence has been provided that the audit's findings have been rectified.
- 'Closed' refers to an audit response that has rectified the audit's findings.

### 2.2.3. Compliance audits

Compliance audits are systematic reviews of an entity's safety management framework and are designed to ensure compliance with specific legislative clauses and Australian Standards.

29 Legislation and standards require the revision of Safety Cases (including Asset Management Plans and Emergency Response Plans) at least every five years to the satisfaction of ESV.

30 The person responsible for the operation of a facility as declared under the Gas Safety Act or as licensed under the Gas Industry Act.

31 Landfill biogas, natural gas distribution, CNG and LPG reticulation networks are only required to register as a member with Dial Before You Dig and follow its third-party response requirements where the assets are not fully contained within a private property.

## Training and competency audits

ESV's training and competency compliance audits were seeking assurance of compliance with the Gas Safety (Safety Case) Regulations 2008 (Regulation 36) and specifically that natural gas distribution companies:

- are vetting specialised training providers to ensure their staff and contractors are suitably qualified to work on natural gas assets and are trained to ensure safe and competent work practices
- have an established system to determine the competence of certified staff and contractors
- are ensuring that the contractors they appoint are undertaking field activities in accordance with approved construction and operational procedures and are being appropriately supervised.

**Table 2-2 – Training and competency audits**

AusNet Gas Services Pty Ltd	0	0	Closed
Australian Gas Networks Limited	-1	-1	Closed
Multinet Gas Distribution Partnership	7	8	Closed
Notes:			
1 This audit was deferred and the audit findings addressed directly through senior management consultation with ESV during quarterly meetings.			

The findings from the training and competency audits revealed a number of common observations including:

- each role's minimum competency requirements not being identified
- systems to identify contractors/subcontractors with lapsed refresher training not being thorough enough to ensure disqualification from working on the asset.

### 2.2.4. Verification audits

Where necessary, ESV may conduct a verification audit to ensure audit findings have been satisfactorily addressed. Alternatively, submitting evidence to justify the closure of an audit may be deemed sufficient.

#### City Gate and Field Regulator audits

In 2016-17, ESV conducted a complete verification audit of 66 City Gate and Field Regulator sites that were previously audited in 2015-16.

Table 2-3 lists information about the audits that were completed, which also involved quarterly meetings with regulated entity representatives to address the required systemic safety improvements. While ESV accepts the rectification of each of the audit findings, it will continue to monitor overall service and maintenance activities.

**Table 2-3 – City Gate and Field Regulator compliance audits**

AusNet Gas Services Pty Ltd	22	0	Closed
Australian Gas Networks Limited	22	0	Closed
Multinet Gas Distribution Partnership	22	0	Closed

#### Mains renewal audits

The three mains renewal verification audits from the 2014-15 audit program have now been finalised and any outstanding audit findings have been addressed.

## Metre room audits

The 37 metre room audits that began in 2012-13 have now been finalised, with ESV accepting the remediation plans in cases where, due to the nature of the work, audit finding rectification was going to be overly prolonged. ESV has now closed this audit program.

### 2.2.5. Field audits

Table 2-4 lists information about ESV's field audits.

**Table 2-4 – Field audits**

67	52	0
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ESV's field audits focused on natural gas mains and service construction and commissioning. These works are often conducted by contractors under the supervision of asset owners. Areas where non-conformances were identified included:

- training and competency
- Occupational Health and Safety (OH&S) practises
- contractor management
- non-compliant work practises with respect to laying mains (for example, the failure to use line-up clamps for jointing, insufficient heating time for the fusion of pipes, joints fused under stress, and pipe preparation for fusion not being conducted in accordance with procedures).

Inspections of Regional Development Victoria's Regional Gas Infrastructure Program identified a number of re-occurring issues involving these areas.

ESV met with Enwave representatives to address similar issues and the remediation required, and will continue to monitor the progress of the construction and commissioning of new gas network connections and the principal contractors and subcontractors involved.

### 2.2.6. Responses to audits

#### Work site attendance

Where required, ESV has directly addressed any issues regarding cooperation from asset owners when inspectors attend construction and operational work sites.

While always working to liaise with licensees and gas companies, and complying with induction requirements and other site access conditions wherever possible, ESV inspectors have a right of access to work sites (where, in the inspector's opinion, safety or accepted Safety Case compliance is a concern).

## 3. Acceptances and approvals

### 3.1. Safety Case acceptance

Legislation requires Safety Cases to be revised at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure the content and quality of their submissions are appropriate for a particular facility, significantly reducing the number of re-submissions required before acceptance<sup>32</sup>.

Table 3-1 lists the Safety Cases due (or overdue) for submission to ESV as at 30 June 2017.

**Table 3-1 – Safety Case acceptance (Non-licensed Gas Infrastructure)**

	Date last accepted	Next revision submitted	Overdue for acceptance <sup>1</sup>
<b>Natural gas distribution</b>			
Multinet Gas Distribution Partnership	19-Dec-06	Yes	Yes <sup>2</sup>
AusNet Gas Services Pty Ltd	24-May-10	Yes	Yes
Australian Gas Networks Limited	02-Aug-10	Yes	Yes
Enwave Regional Energy (Victoria) Pty Ltd	15-Mar-16	No	No
Enwave Victorian Networks Pty Ltd	8-Apr-16	No	No
<b>Reticulated LPG</b>			
AusNet Gas Services Pty Ltd	24-May-10	Yes	Yes
Supagas Pty Ltd	20-Jun-13	No	No
Elgas Ltd	14-Oct-13	No	No
Mount Hotham Alpine Resort Management Board	19-Feb-14	No	No
Westport Region Water Corporation	25-Feb-14	No	No
Indigo Shire Council	23-Jan-15	No	No
<b>Landfill biogas, LNG, an CNG</b>			
Energy Developments Limited	17-Jan-13	No	No
Clean Energy Distribution Pty Ltd	31-May-13	No	No
City of Whittlesea	17-Apr-14	No	No
AGL Energy Sales & Marketing Limited	12-Nov-15	No	No
<b>LPG Retailers</b>			
Origin Energy (LPG) Limited	18-Dec-12	No	No
Supagas Pty Ltd	20-Jun-13	No	No
Elgas Ltd	14-Oct-13	No	No
Vic LPG	9-Feb-17	No	No
Notes:			
1 Submitted documents might not have been accepted for a range of different reasons, from ESV not yet having reviewed the submission, through to deeming the submission unsatisfactory.			
2 This Safety Case was provisionally accepted on 6 October 2017.			

<sup>32</sup> Gas companies declared under Section 5 of the Gas Safety Act or that hold a license issued to a gas company within the meaning of the Gas Industry Act should be familiar with ESV's 2012 guidelines for preparing a Safety Case.

### **3.1.1. Safety Case issues**

While ESV continues to engage with natural gas distribution business when it comes to the preparation of Safety Cases, ESV is generally satisfied with the industry's understanding of the requirements and intent underpinning the Gas Safety (Safety Case) Regulations 2008.

#### **Safety Case production**

Typical concerns about the production of Safety Cases include:

- the methodology applied to risk assessments where risk rankings have only been assigned to the 'highest consequence' rather than 'all credible' outcomes
- the likelihood being assigned to risks (of asset damage) are inconsistent with the data that ESV collects
- insufficient details about contractor management and oversight.

#### **Safety Case revision submissions**

The production of Safety Case revision submissions is a two-step process involving a submission to ESV for preliminary approval, review and assessment for the facility/subject of the Safety Case.

Step one involves preparation of a risk assessment profile. Step two (on approval of the risk assessment profile) involves Safety Case preparation.

New compliance document guidelines are also now available to assist with the preparation of submissions to ESV.



## 4. Education and partnerships

### 4.1. The Gas Emergency Management annual exercise

On 14 March 2017, the Gas Emergency Management Consultative Forum (GEMCF) conducted its annual exercise (exercise HILAND).

The exercise provided an opportunity for participants to test their emergency response plans to curtailment, communication and key messaging processes, and procedures across government, industry and customers during a Level 4 Victorian Gas Event<sup>33</sup>.

Key exercise report recommendations include the following<sup>34</sup>.

- Define the content and affected parties in the curtailment tables to better synchronise industry and Government responses. This may require identifying additional information and trigger points to enable timely activation of Emergency Management Victoria's (EMV) planning processes.
- Review the Single Industry Spokesperson (SIS) Protocol participants and the distribution of approved media statements to ensure the fastest process for coordinating and disseminating communications.
- Establish a process for the coordinated dissemination of information and warnings between the SIS Protocol, government media representatives, and the Victorian Emergency Messaging System to achieve consistent messaging.
- Focus the next GEMCF exercise on implementing curtailment against a resourced EXCON/role-play team (identified as a major challenge by participants).
- Focus the next GEMCF on Level 5 issues to assess the actions required to manage media, public and industry.
- Investigate information support tools and software applications currently used by Victorian Government agencies to enhance Victorian Energy Emergency Communications Protocol (VEECP) decision making processes.
- Consider activating AEMO's Incident Control Team and Crisis Management Team in future GEMCF exercises to practice operational and strategic responses.
- Review AEMO and DELWP/EMV gas emergency public communication responsibilities to eliminate duplication and optimise responses.
- Consider developing online tutorials covering GEMCF member duties and exercise preparation.

### 4.2. LPG governance

ESV has collaborated with the LPG industry and Worksafe to review the boundaries of regulatory compliance for LPG operators. Both ESV and Worksafe govern technical compliance within the LPG industry, and in anticipation of the five-yearly Safety Case reviews within this industry group, a clear differentiation of the Regulation is being developed to ensure ESV and Worksafe are operating within their respective legislated boundaries.

### 4.3. Ongoing initiatives

#### LPG retailers

ESV has become aware of a number of substantial LPG retailers currently operating in Victoria that are not declared gas companies and are not operating under an accepted Safety Case. ESV has initiated an application to the Governor in Council to declare these LPG retailers as gas companies under the Act.

<sup>33</sup> Ri'ziliens Exercise, Hiland Report, 13 April 2017.

<sup>34</sup> GEMCF 2017 Exercise Recommendations Paper.

## **Field audits**

ESV is increasing its presence at work sites involving natural gas distribution business mains and service installations. ESV's inspectors will monitor the progress of contractors and the performance management of asset owners to ensure the works are compliant with Australian Standards and the asset owner's specified procedures.

## **4.4. New initiatives**

### **Gas Safety (Safety Case) Regulations Review**

ESV has initiated a review of the Gas Safety (Safety Case) Regulations 2008, which are ending in 2018. Industry stakeholders have been engaged and consultation with industry will ensure all industry group members are represented in the regulation review process.

### **Regional Development Victoria's Regional Gas Infrastructure Program**

The Regional Gas Infrastructure Program aims to supply reticulated natural gas to communities across regional and rural Victoria. Aiming to bring energy to regional Victoria, the project also supports new business opportunities and investment in regional communities.

Enwave Victorian Networks (previously known as Brookfield Regional Networks), a subsidiary of Enwave Australia, has been selected by Regional Development Victoria (RDV) to supply natural gas to 11 regional Victorian towns, and (along with Enwave Regional Energy) is undertaking the construction, operation and management of the new gas network.

See Section 2.2.5 for information about the outcomes from this project's field audits.

## 5. Compliance and enforcement

ESV's Compliance and Enforcement Policy and Compliance Strategy are designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the Energy Safe Victoria Act 2005, the Electricity Safety Act 1998, the Gas Safety Act 1997, and the Pipelines Act 2005.

### 5.1. Incident investigation outcomes

Statistically, the greatest cause of all pipeline failures is external mechanical interference and this continues to be ESV's most investigated issue. ESV's investigations and their outcomes (which can lead to prosecutions, Infringement Notices, Improvement Notices, or Official Warnings), are making contractors increasingly aware that interference with gas assets have consequences for them and for public safety.

Table 5-1 lists the instances of damage to non-licensed gas infrastructure investigated during 2016-17.

**Table 5-1 – Damage to non-licensed gas infrastructure**

AusNet Gas Services Pty Ltd	Third party asset damage	6-Jul-2016	Warning Letter
Multinet Gas Distribution Partnership	Third party asset damage	15-Jul-2016	Gas Asset Damage Mitigation Project
AusNet Gas Services Pty Ltd	Third party asset damage	12-Aug-2016	Warning Letter
Multinet Gas Distribution Partnership	Third party asset damage	18-Aug-2016	Warning Letter
Australian Gas Networks Limited	Third party asset damage	6-Oct-2016	Closed without enforcement action
Multinet Gas Distribution Partnership	Third party asset damage	17-Oct-2016	Gas Asset Damage Mitigation Project
Australian Gas Networks Limited	Gas leak	4-Nov-2016	Warning Letter
Australian Gas Networks Limited	Third party asset damage	29-Nov-2016	Warning Letter
Australian Gas Networks Limited	Third party asset damage	17-Jan-2017	Warning Letter
Australian Gas Networks Limited	Third party asset damage	2-Feb-2017	Warning Letter
AusNet Gas Services Pty Ltd	Third party asset damage	14-Feb-2017	Gas Asset Damage Mitigation Project
Australian Gas Networks Limited	Third party asset damage	23-Feb-2017	Warning Letter
Australian Gas Networks Limited	Third party asset damage	23-Feb-2017	Warning Letter
Australian Gas Networks Limited	Third party asset damage	24-Mar-2017	Warning Letter
AusNet Gas Services Pty Ltd	Third party asset damage	27-Mar-2017	Warning Letter
Australian Gas Networks Limited	Third party asset damage	19-Apr-2017	Warning Letter
AusNet Gas Services Pty Ltd	Third party asset damage	27-Apr-2017	Closed without enforcement action
Australian Gas Networks Limited	Third party asset damage	16-Jun-2017	Warning Letter
<b>Notes:</b>			
1 This represents action taken by ESV against a third party (not the licensee).			

During 2016-17, ESV completed 18 investigations (resulting in 13 warning letters being issued) for incidents causing damage to gas mains that were caused by a combination of more than one of the following:

- Incorrect/non-existent Dial Before You Dig documentation.
- Incorrectly assuming a Dial Before You Dig response is an approval from the asset owner to perform work in the vicinity of an asset.
- A failure to be able to trace and/or manually prove<sup>35</sup> the exact location of underground assets.
- Not opening the ground or boring beneath the ground as per the Conditions of Works specified by the asset owner prior to the commencement of work.

## **6. Focus and priorities for 2017-18**

ESV's focus and priorities for 2017-18 will include auditing contractor management and in particular ensuring:

- contractors clearly understand the obligations the licensee is required to meet and have established processes in place to provide such assistance
- critical oversight of contracts performing safety and integrity-related functions
- key performance measures are set
- monitoring and auditing of contractor and service provider management.

ESV will also continue to focus on emergency preparedness, and through its emergency management compliance audits will be seeking assurance that licensees:

- have robust systems for ensuring emergency personnel are fully aware of their obligations to ensure safety
- are aware of their requirements to collaborate with market participants, AEMO and ESV during certain emergency levels
- employ systems with sufficient redundancy to alleviate potential emergency scenarios and ensure asset owners operate facilities to a level of risk that is as low as reasonably practicable (ALARP).

<sup>35</sup> Excavating around a pipeline without the use of machinery.

# Natural Gas Retail



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# 1. Introduction

## 1.1. The Natural Gas Retail Industry Group

Businesses involved in natural gas retail are listed in Table 1-1<sup>36</sup>.

**Table 1-1 – Natural Gas Retail**

Natural gas retailers
AGL Sales Pty Limited
Alinta Energy Retail Sales Pty Ltd
Click Energy Pty Ltd
CovaU Pty Ltd
EnergyAustralia Pty Ltd
ERM Power Retail Pty Limited
Esso Australia Resources Pty Ltd
Ipower 2 Pty Limited and Ipower Pty Limited <sup>1</sup>
Lumo Energy Australia Pty Ltd <sup>2</sup>
M2 Energy Pty Ltd
Momentum Energy Pty Ltd
Origin Energy Retail Limited
Powershop Australia Pty Ltd
Red Energy Pty Limited
TasGas Retail Pty Ltd
Notes: 1 Trading as Simply Energy. 2 Combining Infracore Energy Australia and Lumo Energy Australia Pty Ltd for reporting purposes.

## 1.2. Natural Gas Retail Industry Group changes

Changes to the Natural Gas Retail Industry Group during 2016-17 include ESV's acceptance of the Powershop Australia Pty Ltd Safety Case (new entrant).

## 1.3. Focus and priorities during 2016-17

During 2016-17, ESV focused on the 5-yearly Safety Case review submissions and new entrant Safety Case submissions. In addition, ESV engaged retailers through the annual Gas Emergency Management Consultative Forum (GEMCF) exercise.

<sup>36</sup> These names are accurate as at 1 July 2017.

## 2. Monitoring, auditing and inspections

ESV's strategic audit planning process identifies its audit priorities and underpins the annual audit plan and any associated resource allocation. The 2016-17 compliance audits for this industry group focused on self-compliance auditing, internal assessments and audits of approved Safety Cases (and their associated procedures) and Emergency Management Plans.

### 2.1. Compliance documentation, self-reporting and KPIs

Regulated entities are required to have a range of up-to-date compliance documents<sup>37</sup> that detail the entity's safety management framework. These documents provide the benchmark for ESV's ongoing compliance audits.

Compliance document types specific to this industry group include:

- Safety Cases
- Formal Delegations<sup>38</sup>
- Emergency Response Plans.

#### 2.1.1. Self-reporting and KPIs

In 2013, ESV introduced Safety Case compliance self-reporting for natural gas retailers. In accordance with legislation<sup>39</sup>, natural gas retailers are required to demonstrate the implementation of a safety management system as well as the adequacy of that system's internal monitoring, auditing and review.

ESV is seeking an increased level of engagement from natural gas retailers in terms of their Safety Case annual compliance report submissions. While the level of risk associated with Natural Gas Retail facilities is generally lower than other facilities regulated by ESV (as per Activity Risk Scoring), the requirement to ensure the ongoing review and monitoring of safety remains. AGL Sales Pty Limited, Alinta Energy Retail Sales Pty Ltd, ERM Power Retail Pty Limited, Esso Australia Resources Pty Ltd and Origin Energy Retail Limited all submitted self-compliance reports for 2016-17 that demonstrated:

- compliance with both their accepted Safety Case and AS/ISO 19600:2015
- engagement of the organisation's governing body, including its risk and audit committee, board of directors, and senior management
- a clear compliance program and reporting process.

ESV will be directly addressing the senior management of regulated entities that continue to fail to provide self-compliance reports.

#### 2.1.2. Incident statistics

##### Emergency response exercises

Regulated entities are required to conduct emergency response exercises, as detailed in the agreed Key Performance Indicator (KPI) reporting template.

37 Legislation and standards require the revision of Safety Cases at least every five years to the satisfaction of ESV.

38 The person responsible for the operation of a facility as declared under the Gas Safety Act or as licensed under the Gas Industry Act.

39 Regulation 19 of the Gas Safety (Safety Case) Regulations 2008.



Following the identification of certain deficiencies during the 2015-16 GEMCF, and mainly involving the communication protocols of industry participants during an Emergency, ESV is pursuing the following assurances from natural gas retailers:

- The execution of at least two emergency response exercises per year.
- The ability to demonstrate operational competencies through emergency response exercises and involvement in exercises conducted by the GEMCF.
- An understanding that the fundamental focus during a gas emergency is to ensure safety, with the safety of people, property and the environment taking absolute precedence over commercial interests.
- An understanding about the implementation of voluntary curtailment when AEMO is not issuing directions. This came to light during an exercise to test a Level 3 Voluntary Curtailment scenario involving natural gas retailers and distribution businesses.
- An understanding about gas load management and recovery (which has been a cause for uncertainty among natural gas retailers and distribution businesses).

### 2.1.3 Periodic compliance reporting

Agreements are in place with various regulated entities from a number of relevant industry groups for the periodic submission of quarterly Key Performance Indicator (KPI) reports, which are expected to be submitted to ESV within 20 business days of the end of the relevant quarter.

Table 2-1 lists the regulated entities that were late to submit KPI quarterly reports on more than one occasion during 2016-17.

**Table 2-1 – Periodic KPI quarterly report late submissions**

Natural gas retailers
Click Energy Pty Ltd
CovaU Pty Ltd
Ipower 2 Pty Limited and Ipower Pty Limited
Lumo Energy Australia Pty Ltd

### 2.1.4 Electronic audit

Electronic audits are self-assessment questionnaires that are treated in the same way as a compliance audit.

ESV did not conduct any electronic audits during the 2016-17 reporting period.

## 3. Acceptances and approvals

### 3.1. Safety Case acceptance

Legislation requires the revision of Safety Cases at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure that the content and quality of their submissions are appropriate for a particular facility, which significantly reduces the number of re-submissions required before acceptance is given.

Table 3-1 lists the Safety Cases due (or overdue) for submission to ESV as at 30 June 2017.

**Table 3-1 – Safety Case acceptance (Natural Gas Retail)**

Natural gas retailers	Date last accepted	Next revision submitted	Overdue for acceptance <sup>1</sup>
Ipower 2 Pty Limited and Ipower Pty Limited	19-Oct-10	Yes	Yes
Origin Energy Retail Limited	16-Jan-12	Yes	Yes
Alinta Energy Retail Sales Pty Ltd	13-Aug-12	Yes	Yes
M2 Energy Pty Ltd	26-Nov-12	No	No
EnergyAustralia Pty Ltd	19-Feb-13	No	No
ERM Power Retail Pty Limited	12-Mar-14	No	No
Momentum Energy Pty Ltd	17-Mar-14	No	No
Red Energy Pty Limited	18-Sep-14	No	No
Click Energy Pty Ltd	16-Jan-15	No	No
AGL Sales Pty Limited	24-Mar-15	No	No
CovaU Pty Ltd	18-Jun-15	No	No
Esso Australia Resources Pty Ltd	01-Mar-16	No	No
TasGas Retail Pty Ltd	19-May-16	No	No
Lumo Energy Australia Pty Ltd <sup>2</sup>	14-Jun-16	No	No
Powershop Australia Pty Ltd	13-Feb-17	No	No

Notes:

1. Submitted documents may not have been accepted for a range of different reasons that include ESV not yet having reviewed the submission or deeming the submission unsatisfactory.

#### 3.1.1. Safety Case issues

Specific issues relating to submitted Safety Cases include:

- ensuring that the retailer understands compliance obligations attaching to complex installations (which differ from the requirements for standard installations)
- clearly identifying the persons responsible for the safe management of functions such as load curtailment and receiving notifications from AEMO
- articulating which functions will be outsourced
- describing the tolerances of complex installations and effective emergency management during off-specification events.

## 4. Education and partnerships

### Embedded networks

With the prospect of embedded network natural gas retailers entering the market in Victoria, ESV is working with the Essential Services Commission to appropriately determine licensing requirements, the result of which will have implications for the governance and regulation of embedded network companies.

### The Gas Emergency Management Consultative Forum

ESV will continue to encourage all retailers to participate in the GEMCF.

The GEMCF is an industry forum for gas retailers and other gas companies registered with AEMO under the National Gas Rules, ESV, DELWP, and any other natural gas company required to have a Safety Case under the Gas Safety Act 1997.

Providing retailers with the opportunity to participate in system-wide emergency exercises and to test and improve their own emergency preparedness responses and recovery, the GEMCF:

- enables emergency protocols to be agreed with the Natural Gas Retail Industry Group and AEMO, which can be tested with annual emergency exercises irrespective of consumer contractual arrangements
- tests customer relationships and the management of system load in the case of an emergency
- enables industry group members to understand how they can assist in an emergency situation impacting other retailers
- facilitates a holistic, system-wide emergency response requiring resource sharing protocols between organisations, states and emergency services
- tests effective communications to identify lessons to be learned and actions/recommendations to be implemented.

### The Gas Emergency Management annual exercise

An annual GEMCF exercise was held on 14 March 2017. The exercise provided an opportunity for participants to test their emergency response plans to curtailment, communication and key messaging processes, and procedures across government, industry and customers during a Level 4 Victorian Gas Event<sup>40</sup>.

40 Ri'ziliens Exercise, Hiland Report, 13 April 2017.

Key exercise report recommendations include the following<sup>41</sup>.

- Define the content and affected parties in the curtailment tables to better synchronise industry and Government responses. This may require identifying additional information/trigger points to enable timely activation of Emergency Management Victoria's (EMV) planning processes.
- Review the Single Industry Spokesperson (SIS) Protocol participants and the distribution of approved media statements to ensure the fastest process for coordinating and disseminating communications.
- Establish a process for the coordinated dissemination of information and warnings between the SIS Protocol, government media representatives, and the Victorian Emergency Messaging System to achieve consistent messaging.
- Focus the next GEMCF exercise on implementing curtailment against a resourced EXCON/role-play team (identified as a major challenge by participants).
- Focus the next GEMCF on Level 5 issues to assess the actions required to manage media, public and industry.
- Investigate information support tools and software applications currently used by Victorian Government Agencies to enhance Victorian Energy Emergency Communications Protocol (VEECP) decision making processes.
- Consider activating AEMO's Incident Control Team and Crisis Management Team in future GEMCF exercises to practice operational and strategic responses.
- Review AEMO and DELWP/EMV gas emergency public communication responsibilities to eliminate duplication and optimise responses.
- Consider developing online tutorials covering GEMCF member duties and exercise preparation.

## **4.1. New initiatives**

### **4.1.1. Gas Safety (Safety Case) Regulations Review**

ESV has initiated a review of the Gas Safety (Safety Case) Regulations 2008, which are ending in 2018. Industry stakeholders have been engaged and consultation with industry will ensure all industry groups are represented in the regulation review process.

## **5. Compliance and enforcement**

ESV's Compliance and Enforcement Policy and its Compliance Strategy are designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the Energy Safe Victoria Act 2005, the Electricity Safety Act 1998, the Gas Safety Act 1997, and the Pipelines Act 2005.

To date, ESV's activities have been in cooperation with regulated entities that in most cases responded promptly and effectively, and no enforcement action has been required.

## **6. Focus and priorities for 2017-18**

Natural gas retailers are the most visible market participants during emergencies. Given the important role they play, ESV will continue to educate and test the retailers' emergency roles and responsibilities<sup>42</sup> (as the interface between market participants and customers) as well as reinforcing the need for ongoing emergency preparedness.

Safety Case acceptance audits and emergency response exercise assessments (including the industry-wide GEMCF exercise) will be another way ESV engages with retailers to reinforce the fundamental focus during gas emergencies, which is to ensure safety, with the safety of people, property and the environment taking absolute precedence over commercial interests and contractual arrangements.

Priorities for 2017-18 will also include compliance reporting and applying the principles of AS/ISO 19600:2015.

<sup>41</sup> GEMCF 2017 Exercise Recommendations Paper.

<sup>42</sup> Through the GEMCF and the industry emergency response exercise.

# Appendices



# 1. Appendix A

## 1.1 Terms and abbreviations

AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ALARP	As low as reasonably practicable
APGA	Australian Pipelines and Gas Association
AS	Australian Standard/s
Cathodic protection	A technique used to control the corrosion of a metal surface by making it the cathode of an electrochemical cell
Cathodic protection system	An electrical means of mitigating corrosion on buried and submerged metallic structures
CNG	Compressed natural gas
Conditions of Works	A specific requirement issued by a pipeline licensee to an external party prior to its proposed works in the vicinity of a pipeline to ensure the safe and reasonable protection of the licensee's asset. Conditions of Works detail the conditions under which work may be undertaken and are provided by licensees to third parties in response to a Dial Before You Dig enquiry
CP	Cathodic protection
DCVG	Direct Current Voltage Gradient
DELWP	Department of Environment, Land, Water and Planning
EMV	Emergency Management Victoria
GEMCF	Gas Emergency Management Consultative Forum
LNG	Liquefied natural gas
Location classes (T1 and T2)	Urban location classes, T1 involves suburban areas and T2 involves multi-storey areas or large commercial centres
LPG	Liquefied petroleum gas
NDT	non-destructive testing



