

Safety Review Submission - Gas

Executive Summary

A risk based approach to safety should be preferred as it transparently resolves the complex trade-offs between cost and performance and flexibly adjusts to new information or community decisions on those trade-offs. In contrast, a prescriptive regime can and often does quickly become out of date, potentially embedding costs or risk outcomes that are out of step with community expectations.

AusNet Services considers the current mandated requirement for application of a risk based regime to electricity and gas distributors through a Safety Case is broadly effective in driving a process of continuous improvement in network safety outcomes as demonstrated below. Enhanced network safety outcomes for employees, customers and the community are demonstrated by the significant and ongoing improvement of key employee and public safety metrics at both an industry and individual company level.

A summary of the key enhancements recommended to the safety framework include;

- Licensing of all transmission pipelines to ensure transmission assets are adequately protected under the *Pipelines Act 2005*,
- Additional legislative powers for ESV to ensure safe work practices are followed near gas infrastructure to reduce third party damage, *and*
- Single regulatory authority for approval of Safety Cases and Environmental Plans associated with the design, construction, operation, maintenance and decommissioning of gas network infrastructure

Introduction

Gas leaks and third party damage are two of the key hazards associated with operation of the gas distribution network.

Gas leaks – Monitoring and Performance

AusNet Services' gas network has been constructed over a period of more than 100 years and consequently consists of a variety of pipe materials. Cast iron and steel was predominantly used until the introduction of polyvinyl chloride (PVC) for low pressure like-for-like replacement and polyethylene for high pressure networks in the late 1970's. Today, PVC is no longer installed in the network leaving high density polyethylene as the dominant pipe material.

Historically, a systematic approach was used for leakage management. Mains were surveyed for leaks on a periodic basis, with no distinction made between mains material or operating pressure. Over time, with increased knowledge and data of the assets managed, a risk-based approach to leakage management has been adopted.

AusNet Services' risk-based approach for low and medium pressure mains renewal prioritisation is based on risk. The factors contributing to the likelihood include the leakage incident rate (leaks per km of main), material deterioration rate and energy release rate (based on pressure tier). The factors contributing toward the consequence include customer geographical density. AusNet Services applies these inputs to develop a 2x2 matrix of postcodes to prioritise those areas of the network for renewal.

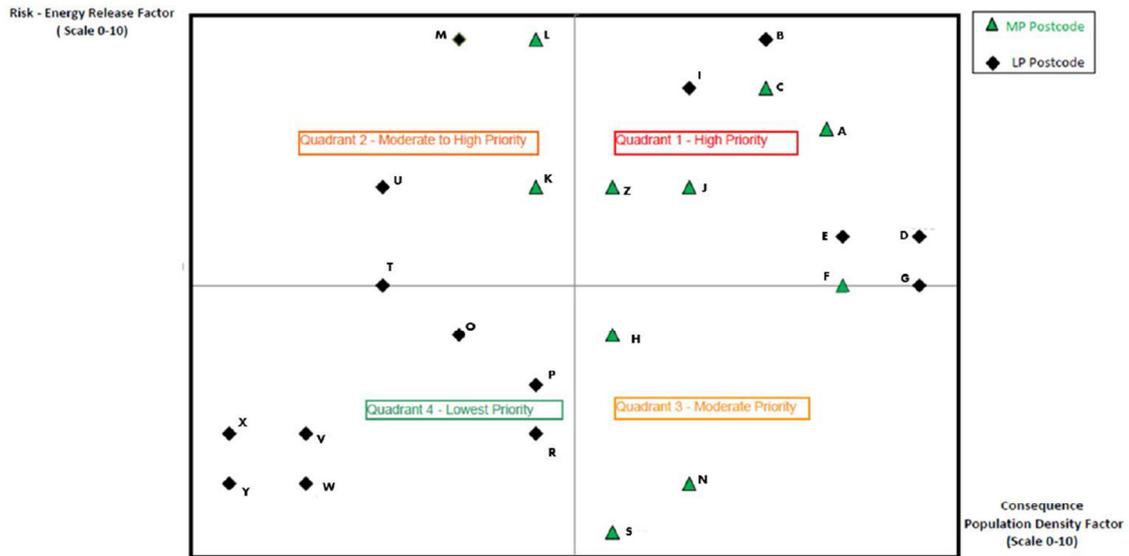


Figure 1: Risk vs Consequence matrix for postcode priority.

AusNet Services' core safety-related program comprises of the low and medium pressure mains replacement programs (LPMRP and MPMRP). These programs aim to cost effectively maintain the network risk level by removing poor performing gas mains and upgrading them to high pressure; consequently reducing leakage volumes. The MRP is monitored by Energy Safe Victoria (ESV) and approved by the Australian Energy Regulator (AER).

The LPMRP is a long and established program having replaced 1,127km^A since 2003, with less than 700km remaining on the low pressure network. The MPMRP was the first of its kind approved by the AER for AusNet Services in the 2013-17 Gas Access Arrangement Review (GAAR), aimed at the removal of the poorest performing mains made of cast iron and unprotected steel.

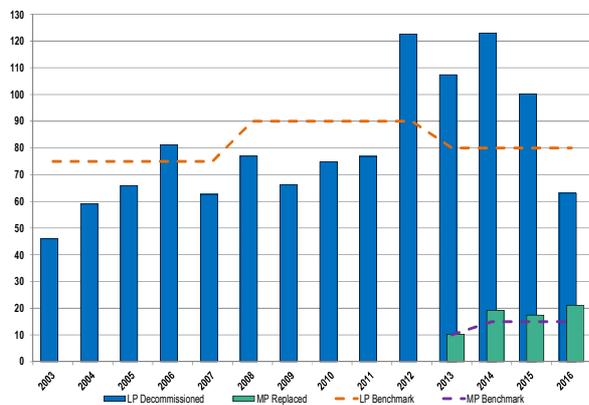


Figure 2: Length of mains decommissioned on low and medium pressure networks

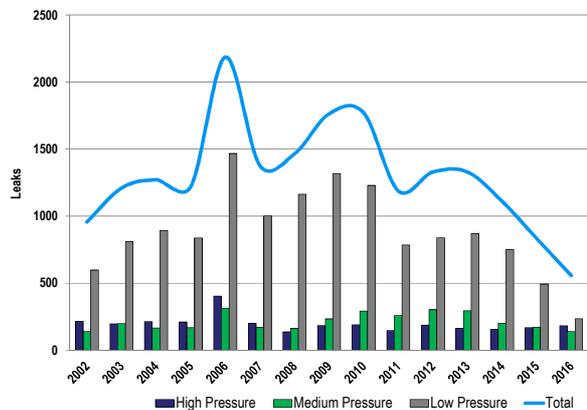


Figure 3: Leakage volumes by pressure tier^B.

Since the implementation of the mains replacement program there has been a reduction in total leaks across the network. Specifically, there has been a 63% reduction in the volume of leaks on the low pressure network (see Figure 3) since 2010. This can be attributed to the steady increase in replacement profile on the low pressure network (Figure 2) as well as a targeted, risk-based approach for cost effective replacement. Similarly, the introduction of the medium pressure program in 2013 has decreased the volume of medium pressure leaks has by 44%.

^A Data is accurate to December 2016.

^B Note, 2015 data is an estimation due to an IT system cutover which occurred in that year.

Third Party Damage

Gas leaks also occur when third-parties encroach and make contact with underground mains or services. This is usually due to contractors performing works failing to make a dial-before-you-dig enquiry, or making the enquiry and not proving the actual location of the assets on site. AusNet Services manages the risk of 3rd party damages by installing distribution mains, where possible, in road or nature reserves. Transmission pipelines, due to their increased hazard level, are located within a 3m easement and visually patrolled daily.

AusNet Services has seen an overall steady decrease in third party damages on mains and services (see Figure 4 and Figure 5). This has also contributed to the reduction in network leaks. AusNet Services works in co-operation with Energy Safe Victoria to identify trends in third party damage in order to identify and educate industries undertaking civil works in proximity to the gas network.

AusNet Services' notes that Energy Safe Victoria's legislative powers are limited in addressing individuals or companies that are negligent in their duties to adhere to industry safe working guidelines for the protection of gas network infrastructure.

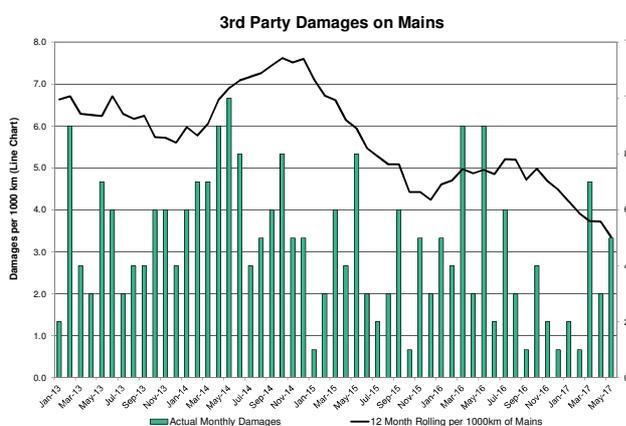


Figure 4: Third-party mains damages

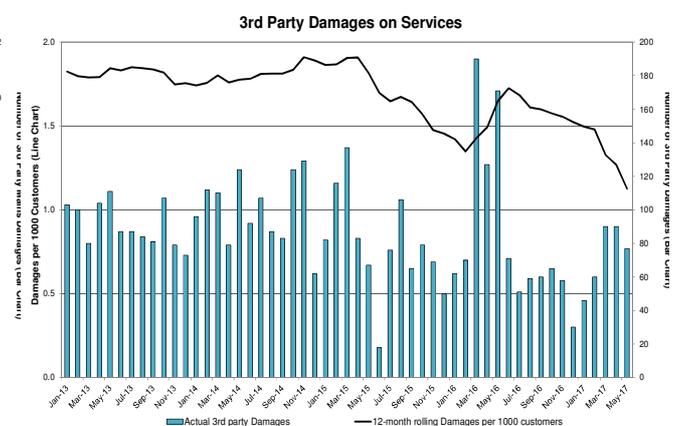


Figure 5: Third-party service damages

Issues for consideration – AusNet Services' comments and recommendations

1. Safety legislation and approach to safety regulation

As discussed in the Introduction, opportunities for continued reduction in third party damage may be enhanced with additional legislative power for Energy Safe Victoria to address failures by third parties to adhere to safe work practices in the vicinity of the gas network.

Whilst not a direct safety related issue, DELWP require rehabilitation bonds to be purchased when an asset owner purchases land freehold. AusNet Services questions the necessity for additional administrative cost and burden for rehabilitation bonds on land owned outright (e.g. city gates) by the network owner. Rehabilitation bonds should be utilised when assets are being installed on land not owned by the asset owner (e.g. on an easement).

To summarise, AusNet Services recommends;

- Additional legislative powers be provided to Energy Safe Victoria to support the encouragement of third parties following safe work practices when operating in the vicinity of gas network infrastructure.
- Rehabilitation bonds not be required on freehold land.

2. Safety culture and engagement of the workforce

Please refer Section 7, 'Promoting Safety Culture and Engagement of the Workforce' in AusNet Services' Electricity Safety Review submission.

3. DELWP and ESV roles in gas network safety

There is currently duplication and overlap in the data reported to both ESV and DELWP, together with a lack of clarity as to which authority establishes the requirements for the annual Environmental Report.

AusNet Services believe one regulatory referral authority for the safe design, construction, operation and decommissioning under the Gas Safety Case would provide enhanced consistency, effectiveness and efficiency for operation of the gas network.

AusNet Services also believes that the process for planning authorities and land developers who wish to develop in the vicinity of licenced or transmission gas assets is confusing. Currently, referrals come to AusNet Services from ESV, from councils (via the SPEAR^C database), and some are notifications come through from DELWP. AusNet Services suggests there should be one centralised organisation for developers to submit plans.

To summarise, AusNet Services recommends;

- Clarity is provided to network businesses on which organisation (ESV or DELWP) holds ultimate responsibility of the annual Environmental Report to streamline and eliminate duplication of reporting requirements.
- One centralised organisation is responsible for land development referrals to avoid confusion and duplication.

4. ESV's capabilities and governance

AusNet Services consider ESV maintains a high degree of capability in their expertise and knowledge of the gas network infrastructure. AusNet Services has observed and support the recent reduced focus on site specific audits and increased focus on safety governance through monitoring and audit of compliance with a business' approved risk based asset management systems, processes and standards that cost effectively enhance network safety outcomes.

5. ESV's approach to regulation

AusNet Services believe that increased legislative powers for ESV to enforce safe work practices by third parties working in the vicinity of gas network infrastructure may result in further reduction in third party damage as discussed in point 1 above. This option would complement and support the current process of education and encouragement of safe work practices near gas infrastructure by third parties.

Safety Cases are the cornerstone to ensuring appropriate and approved risk based asset management systems are in place to maintain and enhance network safety outcomes. AusNet Services believe there are opportunities to improve the efficiency and timeliness for ESV's review and approval of revised Safety Cases. AusNet Services recommend written notification and articulation of aspects of a Safety Case that ESV considers are deficient in meeting the legislative requirements, would facilitate a more timely approval process.

6. Safety reporting and public information

ESV's annual Comparative Performance Reporting framework includes high-level trending of gas leaks and third party damages, which demonstrates the effectiveness of the risk based Safety Case framework. Emphasis on audit outcomes, some of which do not relate directly to network

^C SPEAR - Surveying and Planning through Electronic Applications and Referrals.

safety outcomes, may not always convey the overall inherent positive safety outcomes achieved by businesses operating gas networks.

7. Interactions between economic and safety regulation

AusNet Services supports the current framework and relationship between ESV and the AER. It is expected that programs of work proposed to the AER on the grounds of safety continue to be endorsed by ESV.

8. Emerging trends

As governments move toward fulfilling their global carbon emissions reduction obligations and consumer demand habits evolve, gas networks will look to innovate and adapt; some gas distribution businesses are already in this space. Trials of the introduction of gases other than methane into distribution networks will require collaboration between network businesses, regulators and stakeholders in developing common understandings of the drivers and consequences to ensure the safety and integrity of gas network infrastructure and installations are maintained.