

Chapter 5

A safe gas system

I want the gas system to be safe

Gas
Transmission

nationalgrid

5. I want the gas system to be safe

Summary

We understand the vital importance of safety. Any major release of gas from the high-pressure gas transmission system could pose a threat to life. Consumers who use the gas that we transport, and society as a whole, expect us to maintain the highest safety standards.

Stakeholders tell us that they expect us to be safe in everything we do. We are proud of our safety track record, which is among the best in the industry.

Safety legislation for our business is based on 'goal setting'. This means we must manage risks down to a level As Low As Reasonably Practical (ALARP). We cannot stand still. The safety standards expected of us are continually increasing as new technologies come on line, best practice evolves and new materials are fielded.

What our stakeholders tell us

Our stakeholders consistently say that safety is a priority. We understand this is because they are aware of the risks of our operations and they appreciate the crucial role of the gas transmission system. Without it, much of industry would be without energy and the public would be without heating.

At our "Shaping the Future" engagement events in autumn 2017 we asked stakeholders what was important to them about safety. Feedback included:

"Safety first. Ageing assets have known issues. We should provide assurance we will continue to be safe in future, not just now."

"A major accident has the potential for injury to be caused... Domestic customers should not face any supply security risk."

"Safety delivers now but increasing attention needed as assets age."

The Health and Safety Executive (HSE) is the independent regulator that holds us to account for our safety performance. It has enforcement powers backed up by criminal law. HSE has defined its outcomes and priorities for our industry through its Gas and Pipelines [sector plan](#). Its focus for us includes:

- prevention of major incidents associated with the loss of containment of gas.
- management of the risks associated with ageing infrastructure and the failure of asset integrity.

We recognise that good safety makes good business sense. Incidents and accidents have no upside. There are human costs such as physical harm and emotional distress. There are financial costs in terms of healthcare, lost productivity and fines, as well as reputational harm. HSE estimates that workplace injury and illness costs Great Britain £14.9bn¹ per year.

"We recognise that good safety makes good business sense."

Our activities and current performance

The safety challenge for gas transmission is different to that for electricity. In simple terms an electricity system can be made safe quickly by switching it off. On the other hand, a failed gas system stays hazardous until set procedures have been followed, or physics takes its course, to dissipate the stored energy inside the pipes. Parts of the gas transmission system pose a major accident hazard. These inherent hazards mean that prevention is vitally important.

¹ Source: <http://www.hse.gov.uk/statistics/cost.htm>

Major accident hazards – oil industry case study <https://bcove.video/2BbNA1E>

Some of our gas transmission sites, in common with other high risk sectors like the oil industry, are covered by the Control of Major Accident Hazard (COMAH) Regulations. On 11 December 2005, a series of explosions and fire occurred at an oil storage terminal at Buncefield. In the aftermath of the investigation and prosecution that followed HSE stated “Society rightly demands the highest standards from these high hazard industries...”

Routine activities

Our routine and preventative measures to keep the gas transmission system under control and working safely are summarised in Figure 5.1 below.

We have a moral obligation to keep everybody safe and to comply with statutory legislation. This legislation is mature. It therefore provides a high degree of assurance that we can carry out our duties safely.

Accidental damage to buried pipelines is our number 1 safety risk

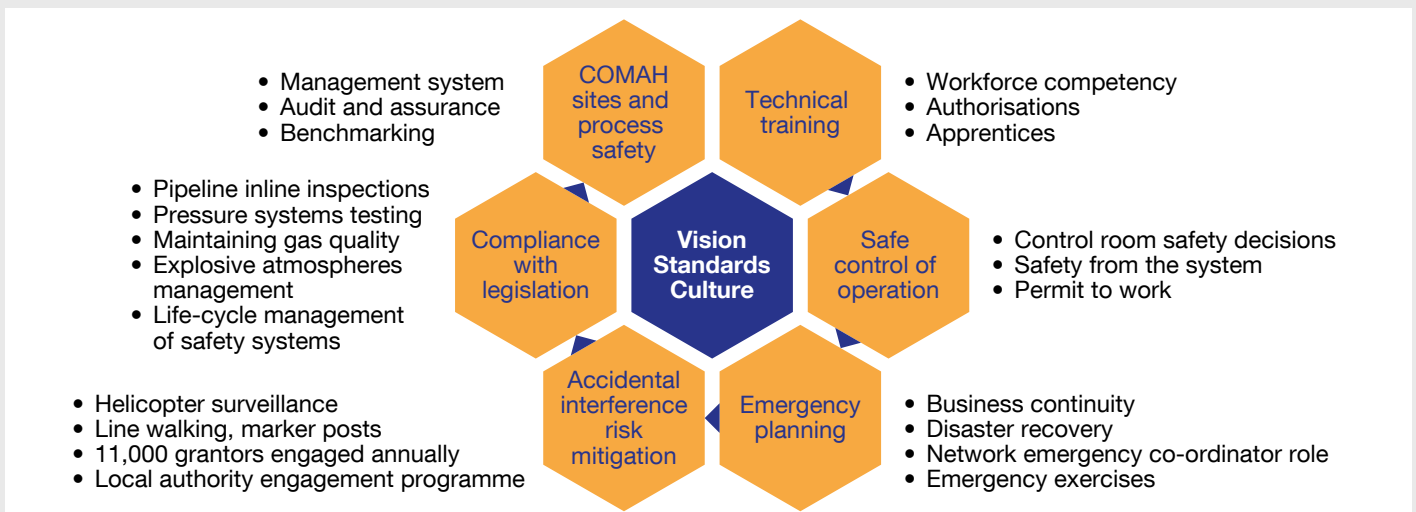
Every two weeks we fly helicopters over 6,500 km along our pipeline routes looking out for potential hazards. This surveillance is part of the measures we take, day in day out, to keep the public safe.

Safety legislation for our business is based on ‘goal setting’. This means we must manage risks down to a level As Low As Reasonably Practical (ALARP). We cannot stand still. The safety standards expected of us are continually increasing as new technologies come on line, best practice evolves and new materials are fielded. Our work covers both routine and non-routine activities.

Decades of national and international industry experience have helped to develop best practice for compliance. That means we can be confident in the routine work that lies ahead and the estimated cost to deliver it.

“We cannot stand still. The safety standards expected of us are continually increasing.”

Figure 5.1: Summary of key routine safety activities



There is an increasing need to refurbish or replace facilities and buildings at our operational sites. This ensures our facilities meet HSE ‘welfare at work’ requirements. It involves delivering non-discriminatory working conditions for all employees and protecting assets within ageing buildings.

We also perform the independent role of Network Emergency Coordinator (NEC). We are responsible for coordinating action across the industry, to minimise the risk of a gas supply emergency.

For example, if there is a gas shortage, a controlled set of priorities would be put in place. This would enable domestic consumers to have gas for as long as possible to minimise risk to life. Our role requires us to carry out a range of emergency preparations and to lead regular cross-industry training exercises.

Non-routine activities

Safety considerations mean that we increasingly need to inspect, maintain or replace ageing assets. This work is assessed and costed as part of our asset health plan described in Chapter 6 to enable customers to flow gas on and off the system. There are typically multiple reasons for asset interventions including: safety, reliability and environmental considerations.

Standards and procedures

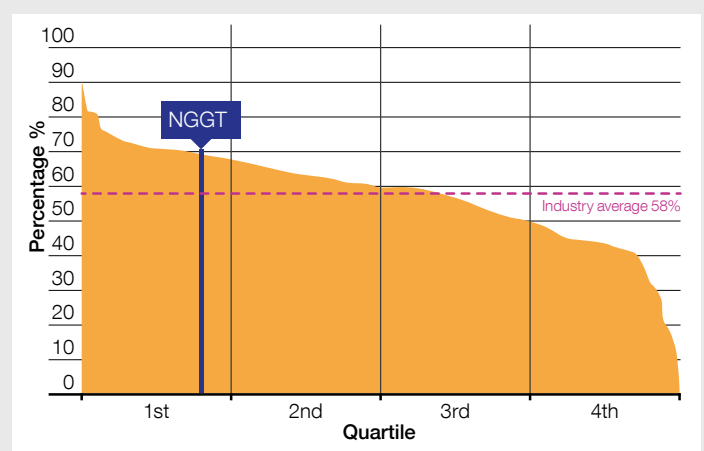
We have already simplified our Business Management Standards. They clearly communicate our commitment to occupational safety and process safety across the whole business. The standards help us to improve by defining what good looks like.

Process safety

We asked independent experts, DNVGL, to benchmark our process safety management performance using its International Sustainability Rating System. Our performance was rated in the upper quartile within a comparator group of over 200 worldwide oil and gas sites.

This objective assessment has helped us to be clear about what it means to be ‘industry leading’. It has given us a better picture of our strengths and weaknesses, and sharpened our focus on areas to improve in future.

Figure 5.2: Benchmarking National Grid gas process safety management performance, April 2018



Our direction of travel

Major accident hazards. Safety remains paramount. This is clearly in line with what our stakeholders want and expect from us:

- We will protect the public, our employees and the environment from the safety risks of our transmission system.
- We will do this through our process safety management system, attention to training and competency management, and the right safety focused culture.
- We aim to be recognised as a high performer in process safety by demonstrating industry leading risk controls, performance and safety culture in the way we manage all our major accident hazards.
- We will investigate any incidents or significant near misses in line with best practices.

Consumers want us to keep disruption to a minimum so that they can use gas as and when they need to. To support this aim we need to keep the likelihood of low-frequency, high-impact incidents low. By preventing failure events we will protect society from potential disruption and minimise damage to public health, business, transport and the natural environment.

“Safety remains paramount. This is clearly in line with what our stakeholders want and expect from us.”

Continual process improvement. We intend to continue to embed the benefits of process improvements into day-to-day work. We want to ensure we spend money in the best way to support affordability for consumers. We’re doing this in several ways. For example, we have been collecting more detailed asset condition data. We will use this, together with our enhanced asset management decision support tools, to ensure that the money we do spend is prioritised to reduce risks.

What it could cost

We do not expect much change in our underlying rate of operating expenditure on routine and preventative safety compliance between RIIO-1 and RIIO-2. This is based on assumptions of compliance with the same mature legislation, good practice for compliance remaining in place, a similar workload, and stable outsourced costs with appropriate asset health funding.

The largest elements of cost associated with the safety priority are operating expenditure for:

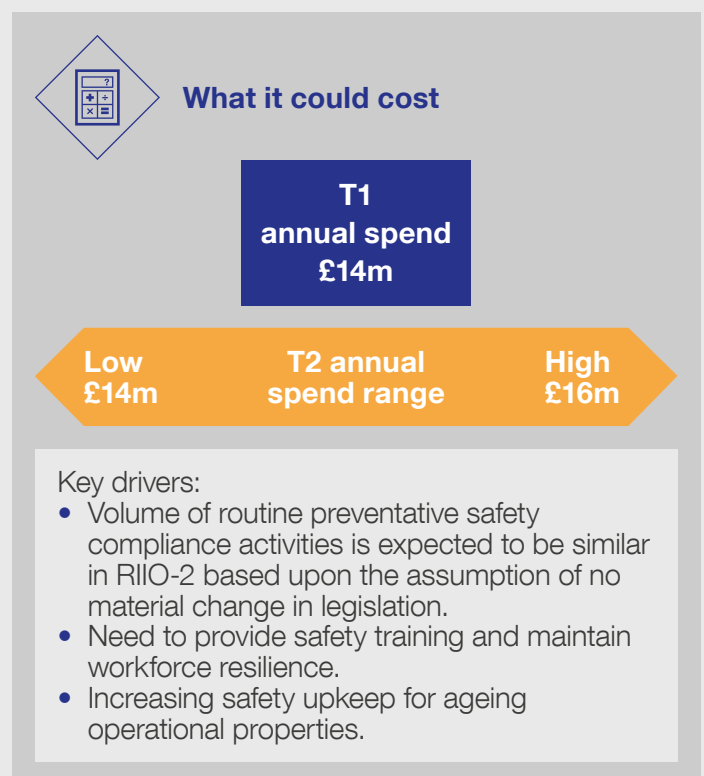
- Fortnightly helicopter surveillance of pipeline routes and line-walking of each pipeline every four years.
- A national, rapid response emergency repair service for pipeline damage.
- Technical competence training for workforce including apprentices.
- Safety upkeep of our operational sites to protect our assets and provide appropriate welfare facilities for our workforce.

Initial planning assumptions

Our starting assumptions for safety related activities include:

- **Legislation:** No significant change in key industry legislation and best practice for compliance.
- **GT Network – Pipelines & AGIs:** No major change in the size of the core network, meaning that the level of safety activity undertaken is expected to remain about the same regardless of which Future Energy Scenario may unfold.

- **Network Emergency Coordinator (NEC).** National Grid continues to discharge the NEC role.
- **Price Control Allowed Revenue.** We believe the safety compliance drivers and workload will be stable during RIIO-2. Therefore, we have assumed that funding for our core safety compliance work will be included in our price control allowed revenue, as it is currently in RIIO-1.



We welcome your views:

Chapter:
A safe gas system

Question:
9. What are your views on our direction of travel for safety?

Submit your feedback online [here](#):

How to use this document

We want your feedback

Who is this consultation aimed at?

We are interested in the views of all stakeholders who are impacted by what we do and shaping the future of gas transmission. This includes the views of gas consumers, government and regulatory bodies, energy industry professionals and members of the public.

Tell us what you think

This consultation is open until 31 March 2019. You may give us feedback in the ways outlined below. We particularly seek your views in response to the specific questions we have posed. These are summarised on page 12. You may respond to all questions or just those relevant to your specific views.

Ways to feed back:

Make notes

Throughout the document, we have provided space for you to read and make notes at the start of each chapter (opposite). You can then type up your notes and send them in an email or submit them online.



Interactive pdf notes

Alternatively, we will be sending out editable pdf versions of this document with note fields for you to type directly into.

Email

We have a dedicated email address specifically for your feedback to this document. We welcome your thoughts at:

jennifer.pemberton@nationalgrid.com



Alternatively, you can put your thoughts in writing and send to: Jennifer Pemberton, National Grid House, Warwick Technology Park, Gallows Hill, Warwick. CV34 6DA.

Online

You can go directly to the website and submit your comments [here](#).



**Please share
your thoughts:**