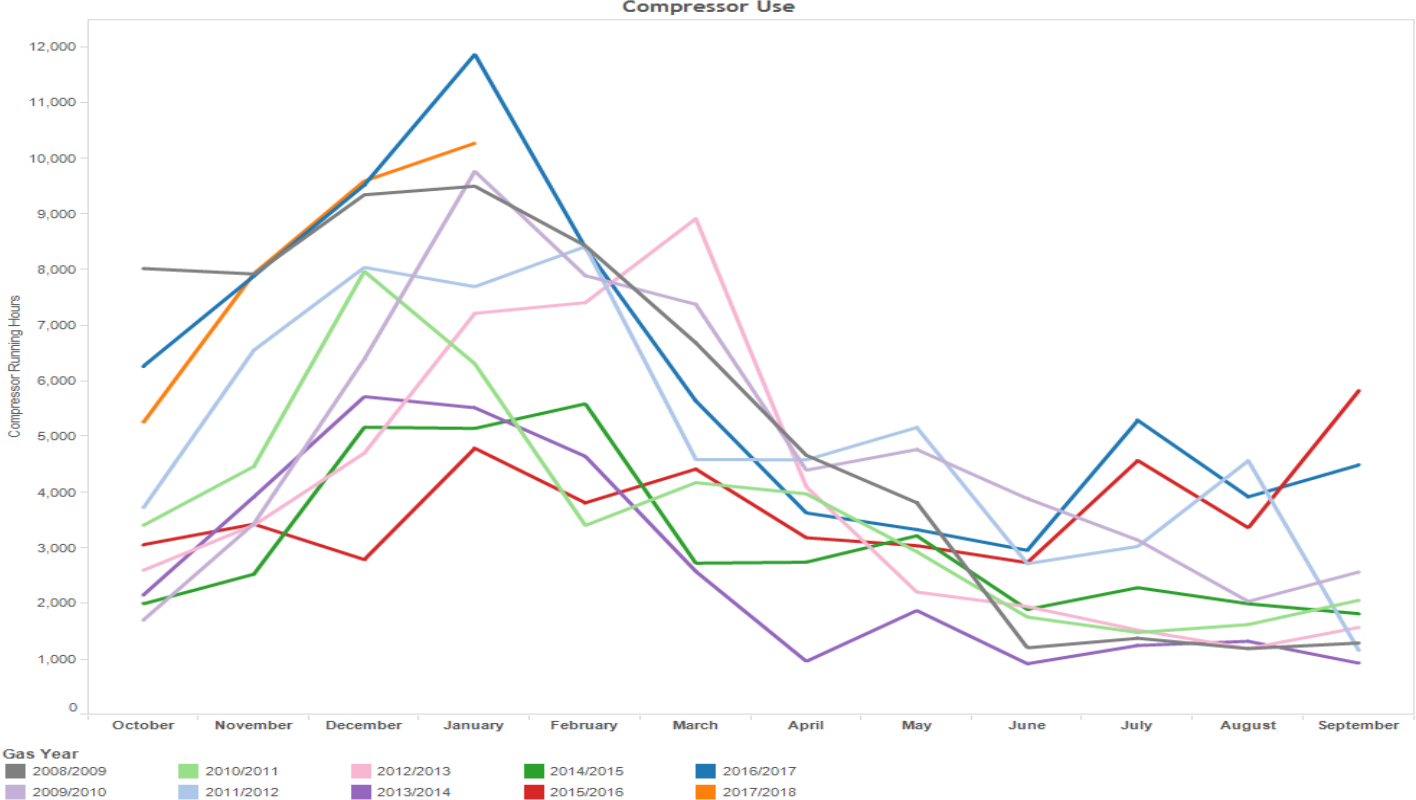


Shaping the Gas Transmission System of the Future

Question	Response
Climate Change Impacts – what is our risk modelling for this	<p>We've completed studies on flooding impacts on our sites which concluded that we should follow a reactive approach as the system will continue operating safely even if a site is flooded.</p> <p>For watercourse crossings, there are two categories (Major & Minor). For majors (Thames, Humber, Duddon, Exe, Forth & Tay), the survey frequency is variable based upon what was identified on the last survey & risk to the asset. Minors are on a fixed survey frequency.</p> <p>We do however instigate reactive surveys after periods of severe rainfall/high river flow events.</p>
Terrorism - what risk assessments do we carry out on major sites – IS Tech & Physical site security	<p>We work closely with Government and the Security Services to ensure that the Network is assessed against the appropriate agreed guidelines. Protective measures are implemented as indicated by the results of these assessments. This is an ongoing process, recognising both the changing use of the Network and that the number and nature of threats that evolves over time.</p>
How quickly could we get back up and running if we had a cyber-attack?	<p>Cyber-attacks can be of varying complexity and magnitude and consequently the impact on our operations will be different. National Grid Gas has implemented a cyber security incident management process which combines our engineering expertise with the company's cyber security expertise.</p>
T1 is overspending – but will NG still achieve the asset replacement it intended to achieve?	<p>NG has a licence obligation to manage asset condition risk at a steady state between the start and end of investment terms. Investment in T1 is greater than originally forecast to achieve compliance with the licence.</p> <p>We are delivering a higher volume of Asset Health work across T1 than originally forecast due to the condition of our assets being worse than originally predicted.</p>
Why are environmental and cost linked?	<p>Environmental emissions are a consequence of our operations similar to safety and security of supply, these measures are monetised in our risk modelling to determine the cost and benefit of our investments.</p>
Does see pockets of innovation but what is the true definition of innovation?	<p>Employing innovative processes, equipment or strategies across National Grid allows us to run, build and maintain our networks more efficiently and effectively, delivering benefits to consumers and shareholders alike. Innovation enables National Grid employees and suppliers to develop effective measures to meet the challenges facing the industry today and tomorrow.</p> <p>National Grid Gas Transmission has always sought to deliver an holistic innovation programme which builds on the key themes of safety, integrity, process, future networks and cognitive computing</p>

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Question	Response
<p>You said in your presentation that compressor usage increased by 62% over last year but has this gone back to historical flows/usage?</p>	<p>There currently looks to be a very slight decrease in compressor usage from Gas year 2016/17 to 2017/18: however, we are only a few months in to the current gas year. As discussed at the workshops, compressor running hours are impacted by many things including:</p> <ul style="list-style-type: none"> • Where gas comes in to the system and where it's used, • Weather patterns – both from a heating homes point of view but also increasingly to provide electricity generation to balance the intermittency of renewables. <p>Here are the profiles for more information:</p>  <p>The chart displays compressor running hours across twelve months for ten different gas years. The y-axis represents 'Compressor Running Hours' from 0 to 12,000. The x-axis represents months from October to September. The legend identifies the gas years by color: 2008/2009 (dark grey), 2009/2010 (purple), 2010/2011 (light green), 2011/2012 (light blue), 2012/2013 (pink), 2013/2014 (dark purple), 2014/2015 (green), 2015/2016 (red), 2016/2017 (dark blue), and 2017/2018 (orange). The 2016/2017 year shows the highest peak in January, while the 2017/2018 year shows a peak in January that is lower than the previous year's peak but still significantly higher than summer months.</p>

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Question	Response
Does see pockets of innovation but what is the true definition of innovation?	<p>Employing innovative processes, equipment or strategies across National Grid allows us to run, build and maintain our networks more efficiently and effectively, delivering benefits to consumers and shareholders alike. Innovation enables National Grid employees and suppliers to develop effective measures to meet the challenges facing the industry today and tomorrow.</p> <p>National Grid Gas Transmission has always sought to deliver an holistic innovation programme which builds on the key themes of safety, integrity, process, future networks and cognitive computing</p>
BEIS are doing a lot. How do people access innovation funding?	<p>National Grid utilises two basic funding routes:</p> <ol style="list-style-type: none"> a. Through the Ofgem innovation regulatory mechanisms (Network Innovation Allowance (NIA) and Network Innovation Competition (NIC)). b. Business investment. <p>In general terms the majority of Gas Transmission innovation funding is via the Ofgem NIA mechanism and this sets out clear programme criteria in the governance document (https://www.ofgem.gov.uk/system/files/docs/2017/07/final_gas_nia_gov_doc_v3.pdf - see page 11) that need to be demonstrated for the funding to be permitted under the scheme these being:</p> <ul style="list-style-type: none"> • A NIA Project must have the potential to have a Direct Impact on a Network Licensee’s network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following: • A specific piece of new (i.e. unproven in GB) equipment: • A specific novel arrangement or application of existing gas transportation equipment (including control and/or communications systems and/or software). • A specific novel operational practice directly related to the operation of the GB Gas Transportation System; or • A specific novel commercial arrangement. <p>Each NIA programme is managed by National Grid project leads but nearly always uses an external supplier to deliver the key outputs of the programme. These programmes are all reported through the ENA portal (www.smarternetworks.org). Our external suppliers form an important conduit for National Grid, either by providing answers to questions the business have raised or by suggesting new and alternative technologies that National Grid need to evaluate in a controlled manner before incorporating them into business as usual. The NIA funding path is active throughout the year and provides a flexible and accessible funding route.</p> <p>The NIC is an annual process and involves programmes that are of a larger funding requirement (>£3-5M) which also have a very focused environmental customer benefit in addition to the NIA guidelines. Currently National Grid Gas Transmission has two NIC programmes; Project GRAID and CloCC (see www.projectgraid.com and www.projectclocc.com).</p>

Shaping the Gas Transmission System of the Future

Question	Response
What legislation is driving decarbonisation?	<p>Overarching legislation is the climate change act. This places responsibility on the governments of the UK to set the framework for legislative drivers to reduce carbon and other GHGs. Directly affecting us is the European Union Emissions Trading Scheme (EUETS) which is responsible for monetizing carbon (in the form of credits).</p> <p>However, when we talk about CO₂e (equivalent; collection of specific GHGs) it also includes things like the Industrial Emissions Directive (IED), Large Combustion Plant (LCP) Directive, Medium Combustion Plant (MCP) Directive etc.</p>
Who are your customers?	<p>Our customers are Gas shippers, Gas Distribution Networks, sub-terminals, site operators at power stations, interconnectors and directly connected industrial customers.</p> <p>In addition we work hard to serve domestic and industrial consumers</p>
What is the Impact of Brexit on compressor fleet	<p>The impact of Brexit is currently uncertain and we're keeping it under review.</p>
Does the NTS need more storage?	<p>There are different elements of "storage" on the gas system. Commercial gas storage sites are owned and operated by a variety of stakeholders, and National Grid Gas has no control over their operation or the amount which is available. The volume of gas in the pipes, which some parties also call "storage" (it's also known as linepack) is used to manage differences in supply and demand patterns within day or from day to day. There is no immediate driver to change this volume of gas in order to meet customer needs, but this will be kept under review.</p>
How will future scenarios be taken into account when planning asset health investment?	<p>We continually review the work required to keep all our assets operational. From this work we generate an asset health work plan. This asset health work plan is then assessed against the future network scenarios to ensure investments are planned to give the optimum whole life cost. This would include considering a range of options such as decommissioning, maintenance regimes, full replacement, refurbishment or commercial options.</p>
When are you looking to cost the FES scenarios?	<p>Costing the scenarios is particularly challenging and dependent on many factors. We are investigating how to do this in the most practical and robust way to inform the future of energy debate in the most useful way. At this stage we are unable to confirm whether the 2018 scenarios will be costed on launch.</p>
Any thoughts on gas quality spec for RIIO T2 period?	<p>There is currently an IGEM working group which is looking to determine the risk associated with changing the Gas Quality specification within the UK. National Grid is contributing to this group, aiming to understand the impact on its own assets and also to hear stakeholder views on the impact of any potential changes. We would encourage all interested parties to be involved in that group.</p>