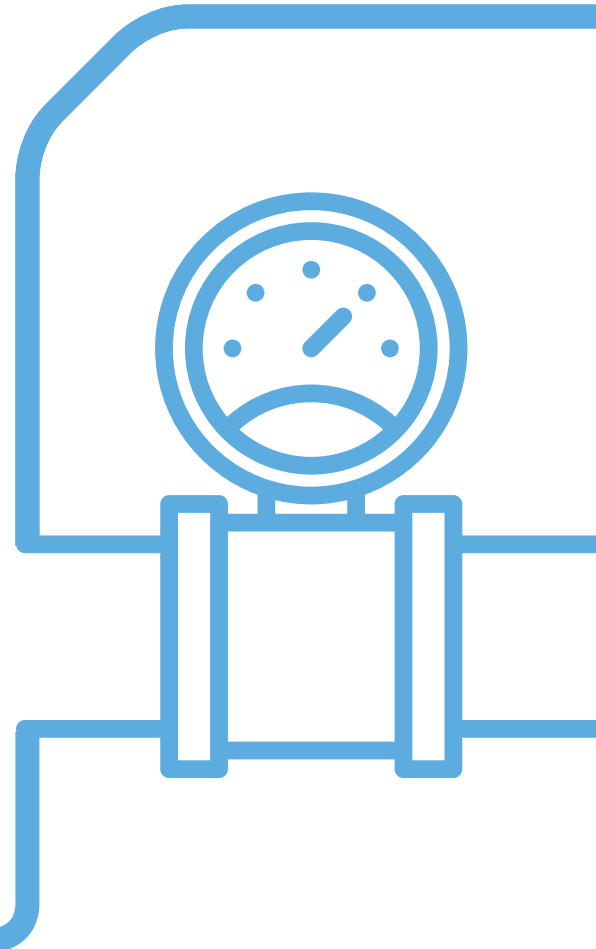


## Ensuring a resilient network

### Keeping the energy flowing every day

We are committed to ensuring uninterrupted service through a network that is safe and resilient. 11 million homes and businesses rely on us and the 131,000 km of pipeline we manage and maintain so this is no mean achievement. Our overall network reliability figure of 99.998% is a testament to the focus of our people and our commitment as a company.

The very fact that we manage to maintain such low levels of interruption is also one of the reasons that we know that network delivered gas must play a part in the green energy vision of the Government: customers simply rely on gas to be there when they need it.





## Ensuring a resilient network

We own, operate and maintain the largest gas distribution network in Great Britain, providing our customers with the energy they need to stay safe, warm and connected

Our skilled engineers and specialist teams are committed to the communities we serve, working day and night to ensure gas reaches 11 million homes and businesses. Our networks comprise over 131,000 km of pipeline, with some parts of the networks originally built more than 100 year ago. This presents us with a range of challenges: from continually improving the safety of our networks; to ensuring exceptionally high levels of reliability, so that gas is there when people need it, and responding quickly when it isn't.

### Responding to keep you safe

We are proud to say we consistently provided overall network reliability of 99.998% this year. A typical residential consumer on our gas network could expect to lose their gas supply just once in 40 years and, on average, they should expect to have their supply restored within ten hours. In 2019/20, we have focused on reducing the number of interruptions and responding rapidly to restore supplies when they do occur. As a result, we have seen a significant reduction in the number of unplanned interruptions in 2019/20 compared to the previous year.

We had to respond to a number of incidents where the gas supply was affected on a large scale in 2019/20, including Wirksworth, Derbyshire and Richmond, London, where our networks were flooded as a result of water mains bursting. In both incidents we brought in engineers from around the country who worked tirelessly to get the gas back on for the affected communities.





### Renewing our network for the future

Since the late 1970s there have been coordinated programmes to replace aging gas network infrastructure. In 2002 the gas network operators; Health and Safety Executive (HSE) and Ofgem, agreed a 30 year programme to replace iron mains prone to fracture with new, polyethylene, lower-emission assets that are ready for transporting lower carbon fuels for the future. This programme was set in place by the HSE and funded by Ofgem, to improve safety for members of the public living close to gas transport assets. The programme will run until 2032 delivering improved safety and reducing greenhouse gas emissions.

In 2019/20 we replaced 1,809 km of iron mains under the HSE programme and over the RIIO period the replacement of iron mains and related services. Since 2012/13 we have replaced over 11,000 km of our networks and have developed plans to accelerate the programme to achieve our RIIO-1 target by the end of the price control period. This includes implementing additional contracts to provide more resource and using more of our direct labour repair teams in the Summer to work on mains replacement projects.

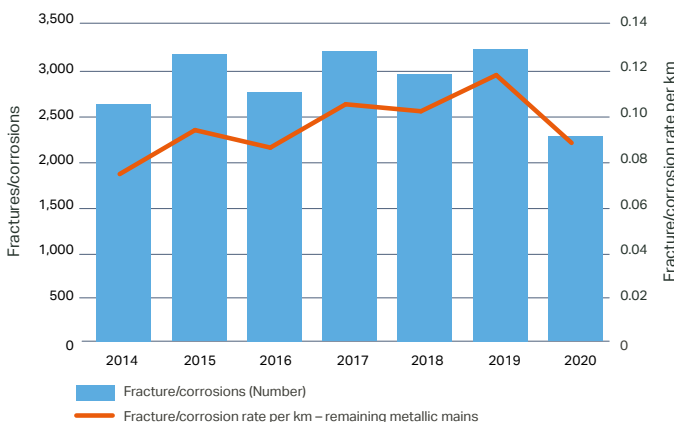
In the final month of 2019/20 we were increasingly impacted by societal restrictions as a result of COVID-19. This significantly reduced our ability to work in close proximity to members of the public.

This will impact on our ability to deliver the same amount of mains replacement and other investments as we planned. However, it is difficult to predict the scale of the impact as the evolution of the pandemic and social restrictions is not clear.

The figure below demonstrates that whilst we saw a reduction in the number of fractures and corrosions last year, the long term trend for the ageing gas mains still in place is that they are failing more frequently leading to possible uncontrolled gas escapes in our network. This key indicator strongly supports the need for continuation of our iron mains replacement programme. In addition, as the UK moves to meet its climate change objectives, we anticipate that further investment in the resilience of our networks will be required to provide the capability to efficiently and sustainably transport a range of low and zero carbon fuels.

In addition to mains replacement, we have expanded our programme of other asset improvements to ensure we provide a reliable network for the future, significantly increasing our expenditure compared to previous years. This includes upgrading and replacing assets – from high pressure, above-ground installations outside major urban areas, through to pressure reduction governors in towns and valves securing individual buildings. We use a structured and certified asset management system and detailed models to ensure we are making good risk based-decisions that provide value for money.

Iron Fractures/corrosion and rate



We expect to further increase investment over the remaining year of this price control period and have detailed plans that have been submitted to Ofgem for our next regulatory period. Our investment unit cost performance is strong relative to our peers, despite significant pressures on costs, due to the high demand for skilled labour in the construction industry. We will continue to manage these pressures alongside the step-up in workload over the coming years.



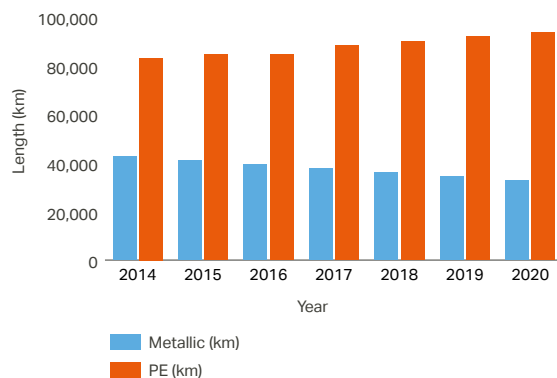
## **Reducing disruption for our customers with CISBOT**

Throughout 2019/20 we've expanded our use of robotic technology to rehabilitate large diameter gas mains in the heart of our busy city centres, working efficiently beneath the public's feet and allowing them to continue their day-to-day lives.

There are far fewer excavations, no disruption to supply and the process is quiet and efficient compared to traditional approaches to replacing mains. Originally trialled in London in locations such as The Strand, Oxford Street and Regent Street, we're now using the same technique in our networks in Norwich and Manchester. Over the year, we've remediated 17 km of mains pipeline using CISBOT with our partners ULC.

Rehabilitation rather than repair is the secret to CISBOT's success. Once a single excavation is completed and shuttered, the CISBOT module is inserted into the gas main and can travel up to 450 m through the main to improve the gas seal of each joint in the pipeline. The robot is operated by a joystick and touchscreen from a vehicle, with the operators watching on screens. Rehabilitating each joint, CISBOT is set to transform the way we work and extend the lives of our pipes by decades. Although there are still many miles of iron pipes to maintain, CISBOT will be used wherever possible to reduce disruption for the general public.

### Metal and Plastic Mains Population



We have 125,000 km of distribution main in our networks. The remaining length of the network comprises local transmission system. The graph shows how the population is changing over time as older metallic mains are progressively replaced with modern plastic. Since 2012/13 we have replaced over 11,000 km of metallic mains and at the end of 2019/20 had reduced the length of live metallic main to 32,500 km.

### Building resilient networks

We design, construct and maintain our networks to be able to supply enough gas on the coldest of winter days. To do this we forecast future gas use in which we are responding to challenges posed by population growth and the changing infrastructure and environments around our networks. The work we do today is helping deliver the networks of tomorrow with the capacity to deliver fuels for the future including hydrogen. This includes, for example:

- reinforcing our medium-pressure network in London;
- upgrading the security at a number of our critical above-ground assets;
- diversion programmes including HS2.



### Improving service in multi-occupancy buildings

In 2019/20 we have carried out surveys on more than 3,553 gas risers in high-rise building across our networks and on 9,476 gas risers in medium rise buildings to ensure our pipelines are safe and maintained. As a result of these surveys we replaced and refurbished 954 gas risers in multi-occupancy buildings.

In order to improve service to customers we have created multi-occupancy managers and working hard to ensure we communicate well with our customers, and they understand our role in managing the assets in multi-occupancy buildings.

Not all multi-occupancy building customers require gas for heating and hot water; some are connected to communal boilers. We have established an energy exchange programme for people who only use gas for cooking, to replace their gas appliance with a new electric version. When customers agree to participate in the energy exchange programme, it minimises the disruption to all the building residents by avoiding the need to replace the gas pipes. Last year there were 127 buildings where this was the best option for our customers.