

# Cadent

Your Gas Network

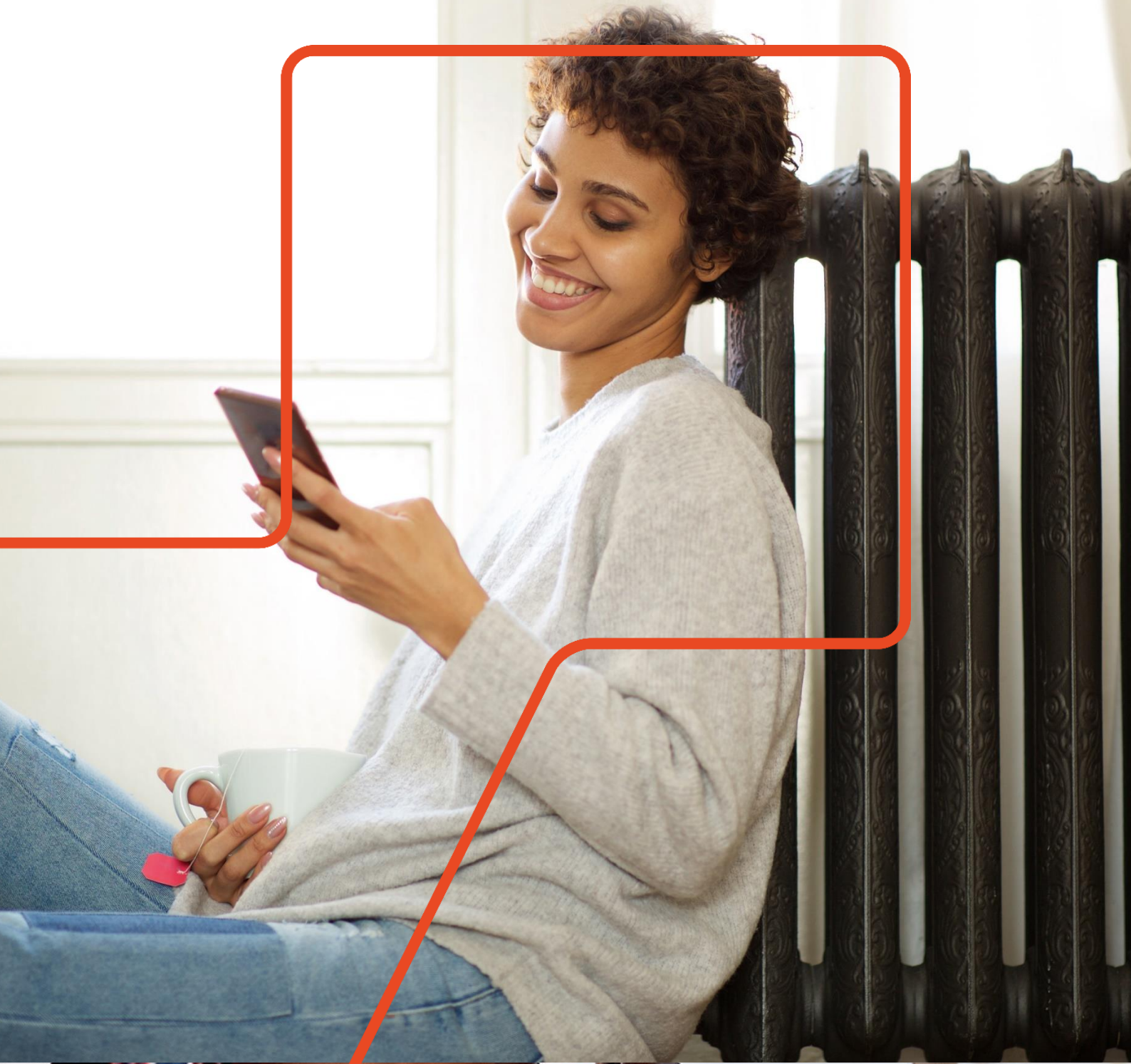
Strategic  
Performance  
Overview

July 2021

# Our performance in RIIO GD1

## Transforming experiences

Keeping people warm whilst protecting the planet



# Contents

1	Strategic Summary	3
1.1	CEO Update	4
1.2	Chairman's Update	7
1.3	COVID-19 Statement	9
2	Our Performance	12
2.1	2020/21	13
2.2	RIIO-GD1	15
2.3	Supporting our customers and communities	18
3	Financial Performance	20
4	Performance Summary	32
5	Innovation	76
6	Appendix 1	81

A photograph of a man and a woman sitting on a light-colored sofa. The man is holding a small white dog. In the background, a fireplace with a warm fire is visible. A large orange number '1' is overlaid on the left side of the image.

# 1

# Strategic

# Summary

We provide the energy our customers need to stay safe, warm and connected.

Our responsibility is to look after the gas pipes so they can continue to deliver safe, reliable and low carbon energy for years to come.

We are continually finding smarter and more sustainable ways to develop our networks and work closely with local communities to deliver a high quality service that our 11 million customers expect.

We are proud to keep the energy flowing.

## 1.1 CEO Update

**Putting our customers at the heart of everything we do, helping them to stay safe, warm and connected to the essential services and products we deliver every day and making a positive and lasting difference to communities.**

Welcome to our 2021 Strategic Performance Review which describes our performance during a hugely challenging and encouraging year, as well as summarising our performance for customers over the whole of the eight year RIIO-GD1 period.

"I would like to begin by extending my heartfelt sympathies to all those affected by the pandemic, particularly those who lost family members and friends. We were extremely sad to lose two valued colleagues and we hold them in our thoughts as we journey to a new normal.

The way our people have pulled together during a difficult year has been outstanding. We have demonstrated our commitment by putting our customers at the heart of everything we do, achieving operational efficiencies and making a positive and lasting difference to communities.

We strive to be the number one gas distribution business in everything we do, and we are committed to a cleaner greener future. We will work with all our stakeholders to achieve this ambition and shape a sustainable future for generations to come."



Steve Fraser  
Chief Executive Officer

## Delivering for customers

Despite the significant challenges during the year, we met most operational targets and those which we didn't meet were solely down to the impact of the pandemic. Through RIIO-GD1 we have transformed the customer service experience, made significant strides in becoming a force for good, and invested to improve the safety and reliability of our network whilst reducing customer bills. It's fair to say that in 2020/21 we had our best year of operational performance and I am extremely pleased with how our colleagues delivered this impressive outcome, while maintaining our industry-leading safety performance.

We also delivered significant improvements in customer service and emergency repair, with the implementation of better systems. This led to greater efficiencies and improvements in every element of customer performance that we are measured upon. Our steps to renew the supply chain and decisions to move to a much more geographic and localised supplier base is already showing impressive results.

## Being a force for good

We want our customers and stakeholders to see us as a force for good and our sustainability agenda is part of our strategy to achieve this. Our ambition is to fuel a thriving world, which means we thrive in everything we do; in our teams and communities, for industry, the environment and the planet.

Along with our environmental commitments, we are investing in our communities to support those living in fuel poverty and provide a range of additional products and services to help customers in vulnerable situations. We are committed to making things easier, fairer and greener whilst continuing to deliver an essential public service.

## Working together for a greener future

In November, I was very pleased to be invited by the Prime Minister to join a small group of industry leaders at a meeting for the launch of his ten point plan for the UK's green recovery. The Government is committed to hitting its zero emissions target and, as the largest gas distribution company in the UK, we have a crucial role in shaping and delivering plans to decarbonise the economy.

We continue to lead the way to a cleaner, green future by planning and collaborating with industry and key stakeholders to meet our net zero targets. This can be demonstrated through our environmental commitments with our supply chain partners, the launch of our green fleet and our role to ensure our networks are ready to transport greener gases. We can already see great progress as we inject biomethane into our network and

trials hydrogen blending at scale. By working closely with key industries and leaders in the UK economy we have been able to drive this progress and have already seen positive outcomes. Examples include the HyNet project which will bring low carbon hydrogen from Ellesmere port into Liverpool and Greater Manchester and our trial with BEIS and Northern Gas Network (NGN) to build the UK's first homes with household appliances fuelled entirely by hydrogen in Low Thornley, Gateshead.

## Transforming the business and building agile teams

I am particularly pleased with the progress we made in transforming the business over the last twelve months. We have a first-class leadership team strengthened by bringing new people into the business and promoting our talented leaders. The addition of Diane Bennett, Ranjit Blythe, Dr Kate Jones, Martin Rimmer and Dr Tony Ballance, has transformed the leadership team.

But you do not change a large company like ours overnight and we have stabilised the business and laid a solid foundation for the future.

We can already see the benefits and impact we have achieved by operating as a local business for our communities. Our depot centric model gives us the capability to drive further improvements in our performance and take us closer to our ambitions.

As we now move into a new regulatory period, we need to ensure we have the right organisation to help us deliver on the commitments we have made. It is important that we can do this in the most effective and efficient way possible. In May 2021, we reviewed how we structure ourselves more broadly as an organisation.

We have taken the time to review our current organisational design to ensure we are set up for success. Following this review, we have established a new 'People Framework' that will rebalance and redefine roles. This means applying a consistent approach with clear, common definitions of roles at each organisational level and consistent job profiles across our functions. Our proposals include changes to our structure, to reshape and build a stronger, simpler and more agile business. We carried out a meaningful and fair consultation in relation to this proposal which ended on the 4 July and our new organisation will be in place on the 1 September.

I would like to thank everyone for their outstanding commitment and determination during the year. We really stepped up to the challenge during unprecedented times through hard work and determination whilst delivering for our customers and keeping people safe. I am sure it is clear to our people the efforts that we made to support everyone across our business. We adopted new

flexible ways of working, maintained fair pay across the whole company, and supported our colleagues to help balance responsibilities at home and work. I would also like to thank our Chairman, Board of Directors and shareholders for their support to enable us to navigate the pandemic and come through as a much stronger and resilient company. We know that we have delivered the very best outcomes for our customers and colleagues in what has been a difficult year.

I am particularly grateful to front line colleagues who continued to enter customers' homes and businesses when required, potentially putting themselves at risk to ensure our customers could stay safe, warm and connected to the essential service we deliver every day. It is easy to forget how challenging this must have been, especially at the height of great uncertainty.

We allowed our colleagues greater flexibility to help the lives of our customers especially those who find themselves in the most vulnerable circumstances. The memories that spring to mind are the much-coveted grocery visits for those most in need, funded by the company. We also purchased 40,000 meals through FareShare by joining the nationwide

effort to stop vulnerable children and families going hungry. These are just a couple of examples of how we grasped the difficulties of the last twelve months and turned them into a positive. It makes me so proud to work for a company that demonstrates this compassion and impact on the communities we serve.

The significant IT systems upgrade we undertook in 2019, ensured we had the technical capabilities to support our office-based staff to work from home and enable the business to operate as usual.

At the same time, we learned new and better ways of doing things, which we will harness going forward. The experience has shown that we can be more productive by working creatively and we will look to maintain more flexible ways of working in the future.

Looking ahead, I want us to meet the needs of our customers first time, every time. With the right level of investment and development of our systems and processes, combined with the support and engagement of our people, I believe this is entirely possible.



## 1.2 Chairman's Update

**“This has been an unprecedented year for all of us. I am proud of the outcomes we have achieved during this challenging period. Our people have shown what is possible when we pull together to maintain essential services and put the needs of our customers front and centre.”**

COVID-19 has dominated the past year and impacted in ways none of us could have imagined.

I would like to begin by expressing my sympathies to all those affected – including our people, customers and the local communities where we live and work.

Like every business, when the pandemic first emerged, we faced uncertainties around how we would manage the business and what we would be able to deliver. We provide an essential service at the leading edge of public utilities, and it was critical that we continued to operate and maintain standards to keep our people safe and meet the needs of our customers.

### **Resilience during unprecedented times**

Our people needed to continue going into customers' homes and businesses, taking immense care to do this safely and following strict Government guidance. We immediately introduced new ways of working and these became easier as the year progressed, however not without ongoing challenges throughout the various restrictions.

We paused our mains replacement programme temporarily in March and it was restarted in June 2020. Our delivery has remained strong throughout the rest of the year.

In many ways, we succeeded in maintaining business as usual and this is testament to the resilience of the business and its people.

Our teams responded brilliantly to the extremely challenging situation. We took an early decision that we would continue to pay everyone throughout, including if they were unwell or unable to work due to COVID-19. We wanted to ensure that the financial wellbeing of our colleagues gave them the security they needed and removed the additional pressure of dealing with the pandemic.

The relationship with our people has been admirable and there have been many stories of people going the extra mile to support local communities and those in vulnerable situations.



Sir Adrian Montague CBE,  
Chairman

## Transforming the customer experience

I am hugely proud of the improvements we have delivered for customers and the commitment to continue this momentum to be one of the best gas companies in the UK. To achieve it, we will be taking more direct responsibility for customer relationships. As we evolve our strategic partnerships, we will be working closely with our four new Construction Management Organisations and local supply chain partners to manage and improve customer engagement.

This change represents a very important moment for the business, driving local decision making closer to the customers and into the communities that we serve. As we grow and evolve to meet the needs of our customers, people and stakeholders, we must continue to strengthen our position to become a more diverse business.

Equality, diversity and inclusion is a fundamental part of the business, and this is something I will be focusing on in the months ahead.

## Leading the future of gas

The Board is looking purposefully ahead to a new era involving hydrogen. Five years ago, the widespread expectation was that the UK's future would be almost entirely electric. However, the challenges in establishing the right amount of electrical generation capacity and upgrading the distribution system have become increasingly apparent. Renewable energy will be crucial for developing the cities of the future and new homes will be powered with electricity. The UK only replaces around 2-3% of its housing stock every year and gas currently heats around 80% of homes.

Clean gas has a vital role to play in the future energy mix of the UK as we transition towards a low-carbon future. Continuing to make use of existing gas infrastructure to support domestic and industrial heating alongside electric energy will provide long-term value for consumers and the country as a whole.

As the UK's largest gas distribution network, we are a leading voice for the industry on the future potential of hydrogen. We are actively engaging with the Government and regulators to build awareness of the opportunities offered by clean gas in the journey towards net zero. As we look ahead to the 26th UN Climate Change Conference of the Parties (COP26) in November, we will be interacting with Government and other stakeholders to promote hydrogen as part of the solution for a low carbon future.

## Transforming the business

I would like to recognise the great progress Steve Fraser has made in delivering the transformation process. Since joining Cadent in September 2019,

this significant achievement is enormously encouraging and a credit to Steve and the entire senior leadership team. The changes Steve has made to the Cadent leadership team have made us stronger and we have seen great people join the business.

Another key decision during the year was to split the existing Safety & Sustainability Committee to create two dedicated committees. It had become increasingly clear that the two areas require and deserve dedicated focus and leadership. Sustainability will determine the future of our business and the new Sustainability Committee with its expert members will report to the Board to shape future strategy. The Safety Committee will allow for a stronger focus on data and overview of safety challenges and improvements. Both committees were established in November and held their first meetings in December. I look forward to seeing them in action during the coming year.

## Committed to a better future: Cadent Foundation

In May 2019, we announced the Board's decision to commit 1.25% of after tax profits to a £20 million community fund which supports communities and customers in vulnerable situations. As Chair of the Cadent Foundation Advisory Board, I have seen the positive outcomes it has delivered in its first year. In response to COVID-19, we recognised the need to support those in vulnerable situations and committed an emergency grant to the Trussell Trust in March 2020 of £240,000. A further grant was allocated to the Royal Voluntary Service in April of £100,000. We also committed up to £125,000 in small grants to charities and groups delivering to those most vulnerable in their local communities. The Foundation has made great progress in a relatively short time to make a positive and lasting impact. We want to engage and encourage charities that address the root causes and consequences of complex social issues, to contribute ideas so they can make a real difference to our communities.

I would like to finish by acknowledging our people and senior leadership team who have worked so hard to deliver throughout the year. I have been unable to get out and meet as many of them as I would have liked, and I look forward to more face-to-face contact over the coming year as we support efforts to rebuild and recover from the impacts of COVID-19.



## 1.3 COVID-19 Statement

**As COVID-19 remains a significant part of our daily lives, we are proud that all our colleagues continue to deliver a critical service, ensuring our customers have a safe and reliable gas supply.**

Since the start of the COVID-19 restrictions in March 2020, we have taken steps to make sure the safety and wellbeing of our colleagues was a priority. This has allowed us to continue to provide an outstanding service to customers including the most vulnerable, in this difficult period.

### Working together

We made our depots, sites and offices COVID-19 secure in line with Government guidelines and worked closely with BEIS, Ofgem and the HSE to follow the necessary risk assessments to allow us to carry out our critical work. We are particularly grateful for the support of the HSE and Ofgem in helping us to do the right thing for our customers throughout the pandemic.

For those colleagues who found themselves working from home we made sure equipment, DSE guidance and services were available to allow them to do so safely and comfortably. Since March 2020, we have been clear that all colleagues would be supported in whatever circumstances they find themselves, whether they are looking after children, living with family who are shielding or any other situation. The key to this support was centred around understanding individual circumstances, flexibility and working together to help prioritise and manage a positive work/life balance. All clinically extremely vulnerable colleagues were offered individual risk assessments including a consultation with occupational health. Additional support was provided to all colleagues including access to our Employee Assistance programme and virtual mental, physical health and wellbeing classes. Home schooling laptops were provided to those who needed support and our internal Coronavirus Hub provided convenient online access to the latest news, advice and reassurances to help navigate our way through the challenges we faced.

### Supporting our Communities

Colleagues from across the business have taken advantage of our enhanced volunteering package to support local communities which saw them help with the delivery of much needed food and medicine. Through our enhanced matched giving support, colleagues have used new ways to raise vital funds for charities in their own communities. Across our networks, we have demonstrated the

proactive steps to go beyond business as usual and we have seen a huge response to support those in need. Notably, we donated £240,000 to the Trussell

Trust to assist with the increased demand at food banks and over 30 of our engineers in the West Midlands helped equip the Birmingham Nightingale Hospital with vital infrastructure for oxygen supplies. Beyond this, across our networks we prioritised customers in vulnerable situations and vital services such as hospitals for gas connections and supplies.

Clear and concise information for our customers and colleagues continued through a range of communication channels which has been essential throughout the last twelve months, continuing our radio and social campaigns to provide reassurance as we carry out essential emergency and mains replacement work. As restrictions ease and our work continues, we regularly meet with Ofgem, HSE and BEIS to make sure we maintain an effective response across the industry. The safety of all our colleagues, customers and stakeholders remains at the heart of the decisions we make and whilst we follow Government guidance, our own enhanced safety measures will remain in place for some time yet. We are planning for the future and continuously monitoring our business continuity plans and working practices to make sure our people stay safe to keep the energy flowing for our 11 million customers.

### Supporting the competitive gas market

Early in the pandemic we led engagement with Ofgem with the other gas transporters to help protect shippers and suppliers by developing the 'COVID-19 Liquidity Relief Scheme' during 2020/21. This involved deferring network charge payments for those qualifying shippers who were facing cash flow challenges. As part of the scheme we provided a £50m facility, being around half of the funds available from the gas transporter community. A significant number of shippers utilised the scheme and of these only one subsequently entered administration before repayment was due, although another shipper who did not participate also failed early in 2021.

Our support to the gas market, which also included modifications to the Uniform Network Code to ease some of the commercial strain on our shipper customers, helped to maintain stability in the gas market when it was most needed and hopefully

contributed to helping gas customers overall in unprecedented times.

## Working with our supply chain

Not only did we have to react and anticipate our PPE and essential pipe, fittings and material requirements as a consequence of COVID-19, but also ensure we had sufficient supplies in the event that a “no deal” Brexit occurred. Even with a deal, there remained considerable risks around disruption to logistics and the supply chain.

Working closely with our supply chain partners and providing them with some certainty and support, we were able to secure sufficient PPE to ensure the safety of our colleagues and customers as well as increasing our material inventories such that we had sufficient supplies to maintain a safe gas network for an extended period in the event of major disruption to supplies arising through Brexit.

We continue to work with our partners as the impact of COVID-19 continues to affect the supply chain as global trade resumes and inevitable problems arise due to virus outbreaks and manufacturing shortages affecting all businesses and countries across the world.

## Mains Replacement, Connections, Multi-Occupancy Buildings and Emergency work.

The primary impact on our operations was felt during the first lockdown between March and July 2020 with the stay at home requirement introduced by Government. For an essential service such as ours, this presented some difficult challenges, although our response was to work on the basis of what we could do rather than what we couldn't.

To support our contractor and supply chain colleagues such that they were able to retain the capability to recommence work and maintain supplies after the first lockdown, we continued to provide funding throughout. This approach enabled us to re-mobilise much faster than others in the sector and deliver the services our customers deserved despite the restrictions in place.

## Mains replacement

We had developed an ambitious but deliverable mains replacement plan for 2020/21 with significant additional resources to achieve it and this was effectively curtailed in the first quarter of the year. Nevertheless, we did not cease activity altogether, balancing the need to keep our customers and colleagues safe we resumed limited work where Highway Authorities agreed, that didn't involve entering homes. The same applied to capital works, where for example, we were able to continue work on Above Ground Installations and governors throughout the year.

In June, working with the HSE and by carrying out extensive engagement with affected customers we

began piloting a resumption of urban mains replacement. We were the first gas network to do this and following development of quantified risk assessments approved by the HSE and subsequently adopted by other networks, the first to fully re-mobilise our operations. This was still difficult as customer and Highway Authority support was vital even with the enhanced COVID-19 safety and communication measures undertaken and not unnaturally we encountered some resistance in some locations. Nevertheless, after the first lockdown we were able to achieve mains replacement rates typically ranging from 30-40km per week, which was extraordinary in the circumstances.

As a consequence, the HSE has formally recognised that had COVID-19 not occurred we would have met our mains replacement commitments. Despite the difficulties encountered in unprecedented circumstances the mains replacement length we achieved during 2020/21 was 1743Km, which compares with an annual average length of 1691Km over the preceding 7 years of the price control.

## Connections

In relation to gas connections, the first lockdown meant that for the most part, with the exception of priority customers such as hospitals or customers in vulnerable circumstances, activity ceased, largely due to customer deferral. Where we could do so safely, we continued to offer services, although at a much-reduced level. Following this lockdown, economic activity picked up again very quickly with increased demand for new connections as well as the need to fulfil those earlier deferrals. This pattern continued with subsequent lockdowns, although to a lesser extent.

The same pattern was not observed with Fuel Poor Network Extensions, where support from Housing Association, Local Authority and other partners was withdrawn in most cases, meaning that a significant number of fuel poor connections were cancelled and have not yet resumed at a pre-pandemic level. Despite these circumstances, we delivered 4,291 fuel poor connections across all our networks. This is more than double the amount we delivered in 2019/20 and represents our 3rd highest year across the 8 years of RIIO-GD1.

## Multi-Occupancy Buildings

The various lockdowns effectively halted our full survey programme for the majority of the year as the number of COVID-19 cases in most urban areas exceeded our quantified risk assessment thresholds and customers were naturally reluctant to grant access to premises. We did however, continue with an abated inspection programme where external assets could be viewed, to minimise any safety risk to customers.

Where gas escapes were reported or identified, our new processes and innovations to maintain supplies rather than turn them off ensured comparatively few MOB customers experienced an unplanned interruption. Those that unfortunately did, faced much shorter periods without gas as our restoration work is significantly more efficient, with MOB customers in London now typically resuming supply within a median period of 13 days. We fully recognise the disruption this can cause to customers, particularly during the pandemic, and have comprehensive support packages tailored to individual needs that go beyond alternative heating and cooking appliances in each case.

## Emergency

Throughout the pandemic we have maintained vital gas supplies to our customers and provided an uninterrupted emergency service, dealing with reports of gas escapes and carbon monoxide emissions to keep our customers safe and warm. As part of this service, the national gas emergency helpline, which we operate on behalf of all GB gas networks continued to meet standards of service where our trained operators answer more than 90% of calls within 30 seconds, despite the difficulties of doing so within a COVID-19 safe operating environment. The gas emergency service is often referred to as the 4<sup>th</sup> Emergency Service and we are rightly proud of our reputation for protecting our customers and UK citizens despite such challenging circumstances.

## Financial impact

Although the COVID-19 pandemic has had a significant impact on society and our customers, we have responded to the operational challenges throughout. As a result of self-isolation and shielding guidelines we experienced increased levels of staff absence, but this did not impact our ability to maintain high standards of customer service.

Our performance relative to allowances for the final year of RIIO-GD1 is largely consistent with the forecast provided last year at a Cadent level. Whilst last year's totex forecast excluded any potential COVID-19 related impacts (as agreed with Ofgem) given the uncertainty surrounding COVID-19 at the time, our actual reported totex spend for the final year of RIIO-GD1 reflects the consequential impact that the pandemic has had upon our operational activities and costs.

We have incurred direct COVID-19 costs of £5m for items such as PPE and equipment to enable our colleagues to continue working both in the field and from home and as a result of adapting our in-house training courses to ensure social distancing can be maintained whilst delivering safety critical training to our workforce. We estimate that £3.5m of indirect costs were incurred as a result of large sections of

our workforce being unable to complete normal work activities as planned during the early stages of the lockdown. Our most significant cost has been incurred through loss of productivity in our replacement programme due primarily to the effects of the first lockdown and subsequent gradual re-mobilisation during July and August. During this period and subsequently we have taken a range of measures to both protect and support our customers affected by replacement activities. This being a factor in reducing productivity and the pace at which we planned to complete the 2020/21 replacement programme.

We continued to pay all our colleagues normally and did not utilise the Government furlough scheme. Between March and June 2020 we took advantage of the VAT deferral scheme deferring a total of £69m, enabling us to increase our liquidity to a level which allowed us to support other market participants who were facing liquidity issues due to COVID-19. This was subsequently repaid early to HMRC in December 2020. Aside from this, we have not participated in any other Government support schemes.

## Outlook

The pandemic has continued into 2021/22 and despite lower hospitalisation and death rates, case numbers are rising again even as the current lockdown remains in place. We have therefore maintained our approach to supporting our colleagues such that we can deliver the services our customers need however circumstances evolve during this first year of RIIO-GD2. We will continue to work closely with BEIS, Ofgem and the HSE in order to achieve our regulatory commitments and maintain a safe and secure network delivering vital energy supplies for Great Britain.



# 2

# Output

# Summary

How we've performed in 2020/21, our RIIO-GD1 journey and our ambition for RIIO-GD2

# 2.1 2020/21



## Safety

Controlled Gas Escapes			
Eastern	Lon	NW	WM
Uncontrolled Gas Escapes			
Eastern	Lon	NW	WM
Repair Duration (GSMR) – % Prevented in 12 Hours			
Eastern	Lon	NW	WM
Programmed Escape Repair Risk			
Eastern	Lon	NW	WM

Mains Risk Removed (Tier 1-3 Combined)			
Eastern	Lon	NW	WM
Length of Main Off Risk			
Eastern	Lon	NW	WM
*	*	*	*
Total Number of Sub Deducts Outstanding			
Eastern	Lon	NW	WM
	*	*	*

## Key Measures

Year 8, 20/21 view

**32 mins**

Average arrival time to emergency gas escapes

**c.265,000GWh**

Gas flow in our network



**1,743KM**

Mains replaced

**< 0.5%**

Of our customers have their gas supply disrupted by an unplanned interruption

Number of Planned Interruptions			
Eastern	Lon	NW	WM
Duration of Planned Interruptions			
Eastern	Lon	NW	WM
Number of Unplanned Interruptions			
Eastern	Lon	NW	WM
Duration of Unplanned Interruptions			
Eastern	Lon	NW	WM

Offtake Meter Accuracy			
Eastern	Lon	NW	WM
Telemetered Fault Response			
Eastern	Lon	NW	WM
Pressure System Safety Regulation Faults Response			
Eastern	Lon	NW	WM
			*
1 in 20 Planning Standard			
By annually demonstrating booking in sufficient capacity to meet customer demand on a peak day			



## Reliability

\* Excludes impact of COVID-19.



## Connections

### GSOP 4: Provision of Standard Quotations

Eastern	Lon	NW	WM

### GSOP 5: Provision of Non-Standard Quotations

Eastern	Lon	NW	WM

### GSOP 6: Provision of Non-Standard Quotations

Eastern	Lon	NW	WM

### GSOP 8: Responses to Land Enquiries

Eastern	Lon	NW	WM

### GSOP 9 & 10 Combined: Provision of SC Dates

Eastern	Lon	NW	WM
*			*

### GSOP 11: Substantial Completion by Agreed Date

Eastern	Lon	NW	WM

### Introduce Distributed Gas Connections

Supporting customers to be connected to our networks

## Key Measures

Year 8, 20/21 view

**4,291**

Fuel poor connections

**Further 4%**

Reduction in leakage from 19/20



**15,797**

New service connections

**8.81**

Aggregate combined CSAT



### Social Obligations

#### Fuel Poor Connection Volumes

Eastern	Lon	NW	WM
	*	*	*

#### Carbon Monoxide Surveys Completed

Eastern	Lon	NW	WM



### Environmental

#### Leakage Volumes (GWH)

Eastern	Lon	NW	WM

#### Capacity of Biomethane Connected

The capacity of Biomethane entries connected to our networks



### Customer Service

#### Planned Work Satisfaction Survey

Eastern	Lon	NW	WM

#### Connection Satisfaction Survey

Eastern	Lon	NW	WM

#### Emergency Response & Repair Satisfaction Survey

Eastern	Lon	NW	WM

#### Complaints (Combined)

Eastern	Lon	NW	WM

#### Stakeholder Engagement

By annually demonstrating a commitment to our stakeholders through engagement activities

## 2.2 RIIO-GD1

### Transforming the customer service experience

**8.81 Aggregate CSAT score across all 3 core processes in 2020/21.**

**+0.56 from 2019/20**

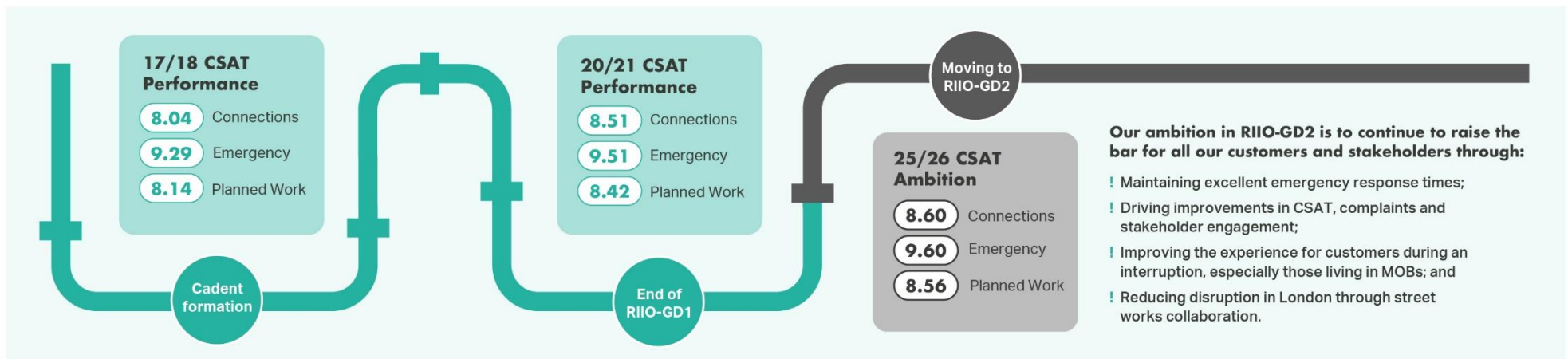


In 19/20, we achieved a Stakeholder Engagement Incentive Submission Score of **6.93**

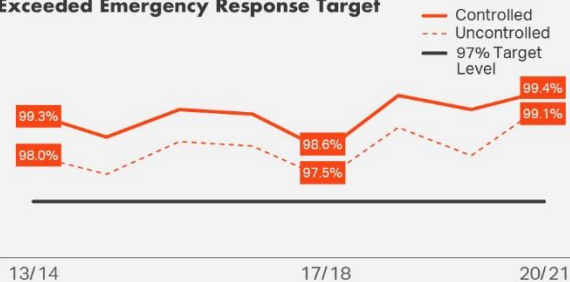


In 2020/21, we achieved **>90%** in **ALL 8** of the Connections GSOP minimum standards

\*Our 20/21 score will be available in August 2021



**Exceeded Emergency Response Target**

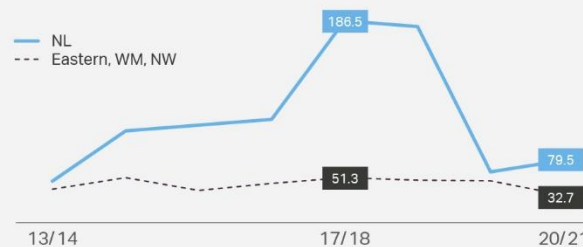


Answered **15 million** emergency calls over RIIO-GD1, **93%** within **30 seconds**



**32 mins** Average arrival time in 20/21

**Reduced Unplanned Interruptions Average Duration (Hours)**



**57%** Reduction for London from 18/19 to 20/21

**Reduced Complaints Metric (Cadent Average)**



In 20/21 **over 80%** of our complaints were closed within 24 hours

# Making significant strides in becoming a force for good

**Over RIIO-GD1, we completed 34,674 Fuel Poor Connections**

## CO Awareness – RIIO-GD1 Highlights



**97,138**  
CO alarms distributed



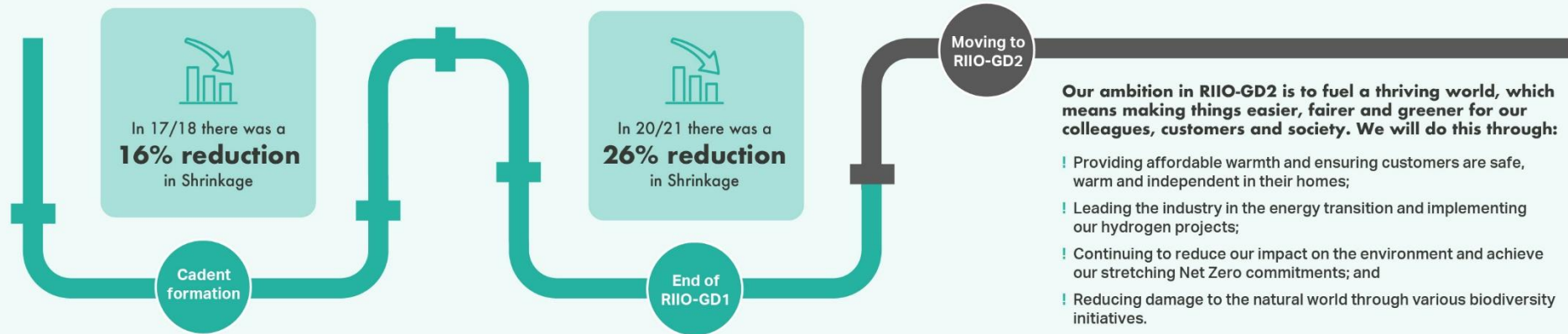
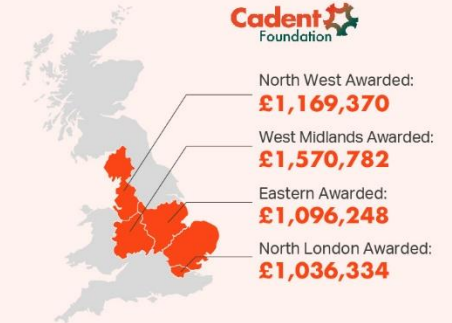
**74,388**  
Families educated



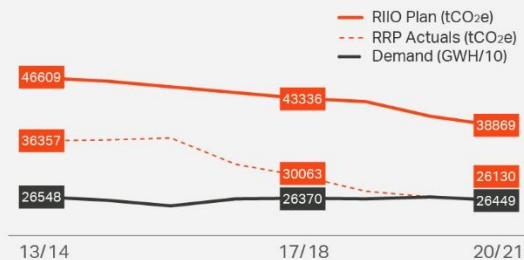
**410,231**  
Reached via our social media CO Awareness campaign



**246,078**  
CO awareness surveys completed



## Reduced Business Carbon Footprint (exc. Shrinkage)



## Reduced Shrinkage & Leakage (GWh)



**Hynet North West** will reduce CO<sub>2</sub> emissions by up to **1 million tonnes** every year, equivalent of taking **600,000** cars off the roads



Over RIIO-GD1, we connected **36** new biomethane producing plants



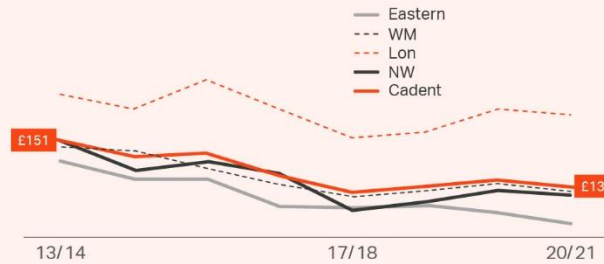
Our **Hydrogen Fuel Cell Project** will prevent an estimated **22 tonnes** of CO<sub>2</sub> emissions over 24 weeks



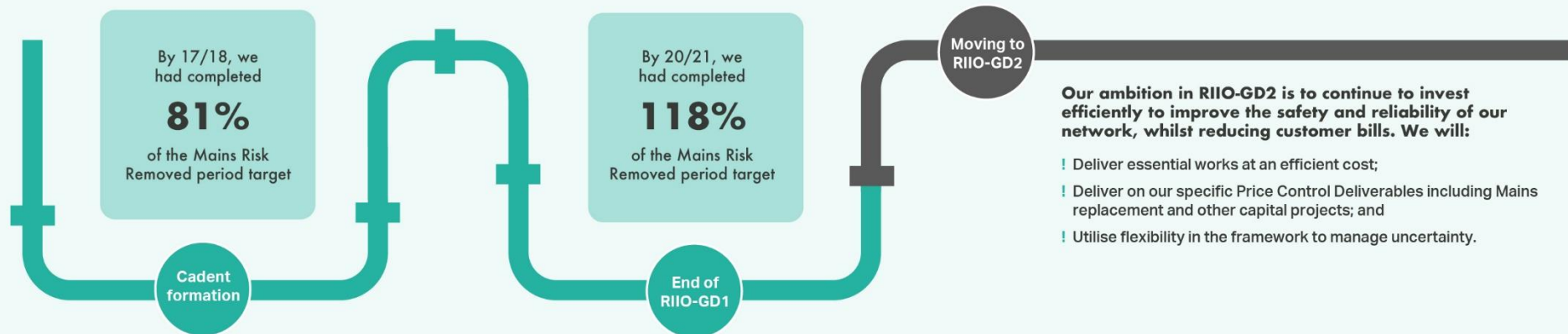
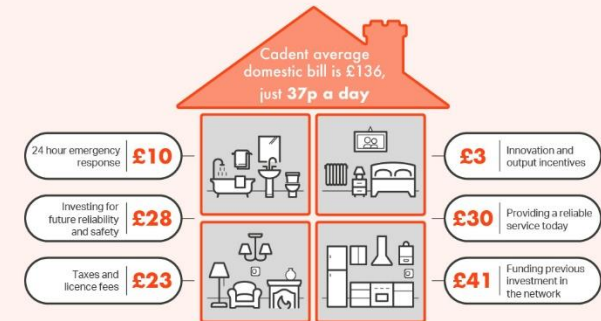
# Investing in our network whilst reducing customer bills

**Over RIIO-GD1 the average domestic bill has reduced by 10% which is a reduction of £16 p.a. in real terms**

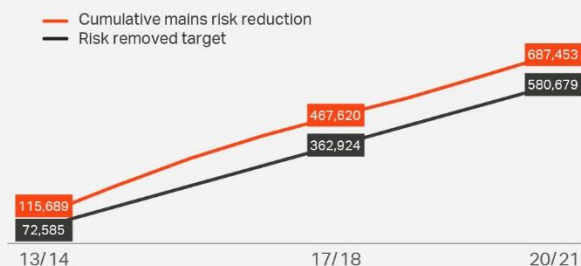
Average Domestic Bill



Cadent Customer Bill Breakdown 2020/21



## Exceeded Mains Risk Removed Target



**14,001km** Mains replaced over RIIO-GD1



**8%** Reduction in fractures and failures since start of RIIO-GD1



**40%** Reduction in Gas in Buildings occurrences since the start of RIIO-GD1

## Making mains replacement easier



CISBOT innovation - (Cast Iron Sealing Robot)

## 2.3 Supporting our customers and communities

In addition to delivering our commitments we would like to highlight other areas where we have delivered real benefits for our customers and the communities we serve as well as our contribution to the future energy debate.

### Supporting our communities

Promoting equality, diversity and inclusion and ensuring that our services are as accessible as possible has continued to be a priority for us, and we have gone further to **make things fairer for the people we serve**.

Our engineers often encounter customers who could benefit from additional support. We launched the **Support Service Selection app**, that was co-created with multiple expert stakeholders. The app puts all the data held within the PSR at an engineer's fingertips and considers key external data, such as weather forecasts, individual customer needs and how long the customer is likely to be without gas. This recognises that vulnerability is transient, and anyone can become vulnerable in different circumstances, and identifies the most appropriate support solutions for that customer.

Following a successful trial in two of our networks, we have partnered with National Energy Action (NEA) to use their independence and expertise for a truly joined up customer service and launched the **One Number Referral Scheme**. Colleagues or delivery partners can now refer customers by calling a dedicated number, managed by NEA's experienced team, to access a range of support services including energy advice, wellbeing support, income maximisation services, financial support with appliance repairs and various additional safeguarding services.

### Supporting our people

We have made significant strides in delivering our commitments to **equality, diversity and inclusion (EDI)** through our independently chaired focus groups.



Embrace



Women in Cadent



Cadent Military Community



Pride at Work



Thrive

In response to feedback from colleagues we have implemented the following initiatives:

- **Language and communications** – We have developed a dedicated EDI communications team to deliver internal and external campaigns.
- **Supporting people with disabilities** – We launched Thrive our fifth EDI community, supporting colleagues with visible and invisible disabilities.
- **Extending EmployAbility services** – One of our biggest successes during lockdown was continuing to run our EmployAbility internship, which offers work placements for 16-18 year olds with special educational needs and disabilities. Whilst other organisations were unable to maintain their schemes, we created new ways of working, adapting our approach to keep our interns safe and working whilst adhering to COVID-19 restrictions.
- **Sharing best practice in EDI** – We work with our industry to shape EDI in the sector. We have long been signatories to the Energy & Utilities Inclusion Pledge, Skills Strategy, Armed Forces Covenant, The Social Mobility Pledge and we are a Disability Confident Employer. This year we signed the Race at Work Charter and Employers Domestic Abuse Covenant, at the request of colleagues.

During the first COVID-19 lockdown, we saw a decline in our colleagues' fundraising efforts. Our strategic partner Alzheimer's Society explained that this was a consistent theme across the country and helped us to co-create a range of fundraising ideas for our colleagues. Following colleague feedback, our Senior Leadership Team also launched a **quadruple Matched Giving campaign** to re-energise colleagues into fundraising during the final quarter of 2020. This included an additional competition where charities could receive up to ten times the usual Matched Giving allowance. The campaign was a huge success, and Matched Giving applications

more than doubled in comparison to the first six months of 2020/21. In total, **we contributed £87,473 in Matched Giving during the campaign, which was an increase of 809% compared to the same period in 2019.** As a result, we were selected as finalists for the **'Employee engagement initiative of the year'** at the Business Charity Awards 2021.

We also doubled the volunteering allowance for colleagues to two days a year. To support this, we launched a new partnership with Neighbourly, providing colleagues with the ability to self-serve using an award-winning online volunteering platform. **In the last year our colleagues supported communities with 1,085 hours of volunteering in total.**

### Supporting the energy transition

We are leading the way in ensuring that the UK's gas network plays its role in securing **zero carbon energy which is reliable, flexible and convenient for customers to use.**

Our External Affairs team, together with senior leaders, have spoken at **over 300 virtual events** over the past year. This has included speaking at political and industry conferences, leading webinars, chairing cross-sector meetings and facilitating collaborative workshops. We have used these platforms to share our research and the learnings from our hydrogen trials, in support of the case for including hydrogen in the UK's energy plans. Our multi-layered approach has been very successful, and it is now largely accepted that **hydrogen will play a key role in the UK's future energy plans.**

This year, we have moved forward at pace with our flagship hydrogen projects, **HyNet North West (NW)** and **HyDeploy**, providing policy makers with much-needed evidence of hydrogen's potential to realise the UK's net zero ambitions in homes and industry.

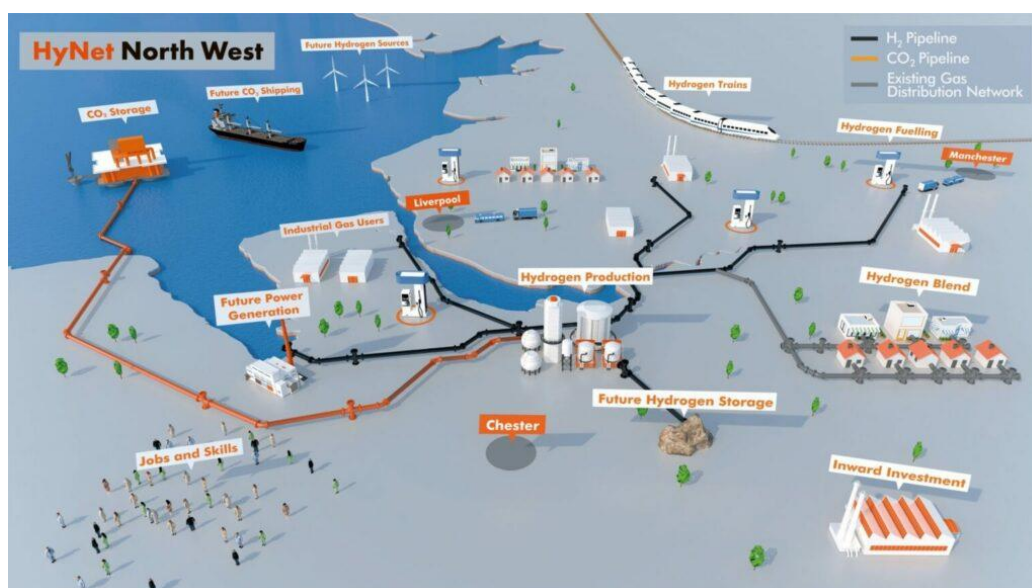
Through HyNet NW, we will reduce regional carbon dioxide emissions by **up to 1 million tonnes every year, which is the equivalent of taking 600,000 cars**

**off the road.** This is one of the most impactful projects across the whole of the UK.

HyDeploy has completed its work demonstrating the blending of hydrogen into the private gas network at Keele University. We have proven that the use of the blended gas requires no change to appliances, and customers do not notice any difference to their gas supply. Such was the success of our trial, our stakeholders asked us to scale up our ambitions and we, alongside NGN, will take the next major step by **blending hydrogen into over 600 homes in the first public network later in 2021.**



Working with BEIS and NGN, we have recently launched the first ever hydrogen home to allow customers to experience a home fuelled by hydrogen and see how the appliances compare to existing ones.



3



**Cadent**

Your Gas Network

**Financial**

**Performance**

# Totex performance

## Totex drivers

Totex spent in the year was higher than our allowances in all 4 of our networks reflecting higher workload profiled to the latter years of RIIO-GD1, and conditions in the contractor supply market. Overall, RIIO-GD1 totex of £8,892m (20/21 prices) compares to allowances of £9,375m, reflecting a 5.2% outperformance of allowances. This 5.2% outperformance converts to just 1.2% of Return on Regulated Equity or RORE. See section below for further details on RORE. Outperformance of allowances is shared with customers via the regulatory totex incentive framework. Not only does it provide this one-off benefit but by continually improving our level of efficiency we can be confident in setting stretching efficiency levels in future regulatory periods providing further benefits to customers on an enduring basis.

However, as the table below demonstrates, when performance is compared pre and post separation from National Grid, there is a marked difference. In the first 4 years under National Grid's stewardship, the totex outperformance was c. 11% . The outperformance was driven by low workload delivery and occurred despite significant opex inefficiencies. This largely reverses in the 2<sup>nd</sup> 4-year period of RIIO-GD1 under the consortia ownership as the business concentrated on successfully transforming the operating cost base and delivering the 8-year regulatory output commitments. To ensure delivery of the 8 year output commitments, the investment costs were significantly higher in the 2<sup>nd</sup> 4 years of RIIO-GD1.

£'m 20/21 Prices	Allowances*	Spend	Variance £'m	Out / (Under) Performance %	NG Ownership	Consortia Ownership
<b>Opex</b>	3,778	3,876	-99	(3%)	(7%)	2%
<b>Capex</b>	1,275	1,352	-78	(6%)	18%	(33%)
<b>Repex</b>	4,322	3,663	659	15%	25%	6%
<b>Totex: Cadent</b>	9,375	8,892	483	5%	11%	(1%)
<b>Network breakdown</b>						
<b>Eastern</b>	2,920	2,921	-1	(0%)	7%	(7%)
<b>London</b>	2,589	2,374	215	8%	18%	(2%)
<b>North West</b>	2,174	2,082	92	4%	6%	2%
<b>West Midland</b>	1,692	1,515	177	10%	12%	8%

\* An adjustment to FY21 regulatory allowances has been forecast in respect of Repex Tier 2A Risk Above Threshold - these will be finalised as part of the November 2021 AIP and are not material to the overall totex position presented

The performance relative to allowances for the final year of RIIO-GD1 is largely consistent with the forecast provided last year at a Cadent level. Whilst last year's totex forecast excluded any potential COVID-19 related impacts (as agreed with Ofgem) given the uncertainty surrounding COVID-19 at the time, our actual reported totex spend for the final year of RIIO-GD1 does reflect the consequential impact that the pandemic has had upon our operational activities and costs.

## Totex efficiencies over RIIO-GD1 vs Allowances

As noted above, the investment performance relative to allowances is markedly different between the first half of RIIO-GD1 under National Grid stewardship and the second half under consortia ownership. Our commitment to ensuring delivery of the 8-year output commitments, despite the low workload delivered in the first 4 years of RIIO-GD1 resulted in a materially higher spend in the second half of the regulatory period.

The following table outlines the sources of totex 8-year efficiencies/performance:

		8 Year Efficiencies* (£m, 20/21 prices)			
		Repex	Capex	Opex	Totex
<b>Innovative long term contracting approach</b>	- More risky contract approach to optimise and crystallise keener prices from 8 year contracts with set work with aligned incentives to customers				
	- Economies of scale (merging 6 contracts to 2, and consolidating locations)	110	-15	-85	10
	- Moving Design into GDSPs (instead of duplication/handoffs in old model)				
	- Single delivery unit for planned work (stranding of resources in opex)				
<b>Improved design and use of best practice</b>	- Cost efficiencies from improved detailed design	245	0	5	250
	- Increased use of best practice / existing techniques improving abandon/lay ratio, level of insertion and live insertion				
<b>Optimal Pipe selection</b>	- GDSPs optimising a fully risk based selection criteria to deliver Primary Output	170	0	0	170
	- Partially offset by more services				
<b>Within Period Innovation</b>	- GDSPs continuous improvement plans to deliver				
	- New Technology roll-out				
	- Planning of workload to drive and maximise innovation leading to more efficient delivery	125	0	120	245
	- Direct Opex - driving transformational end-to-end efficiencies through process improvement & re-design				
<b>Optimal network planning</b>	- Driving nominated load requirements for interruption customers down (c.20%)				
	- Improved network analysis	0	45	0	45
	- Underlying capacity demand reducing faster than business plan - slower economy / greater energy efficiency				
<b>Smart</b>	- Rollout of Smart metering. Impacts reduced following working with industry, but still expect significant impact.	0	0	-15	-15
<b>Business Support Costs</b>	- At start of RIIO found to be off pace on this element of Totex.				
	- Gap to allowance historically - in part due to centralised nature of NG structure plus centralised model benefiting lower operational costs	0	-105	-120	-225
	- As a new separate business we are tailoring our business support costs and driving through transformational improvements (including IS) that are reducing costs to below allowances by 2020/21				
		<b>650</b>	<b>-75</b>	<b>-95</b>	<b>480</b>
		<b>15%</b>	<b>-6%</b>	<b>-3%</b>	<b>5%</b>

\* Efficiencies are quoted against the regulatory allowances as stated in RRP Table 2.2

\* An adjustment to FY21 regulatory allowances has been forecast in respect of Repex Tier 2A Risk Above Threshold - these will be finalised as part of the November 2021 AIP

\*\* Note that figures above have been rounded to the nearest £5m, hence the total differs slightly to that quoted in the TotEx table earlier in this section

## Operating cost performance relative to allowances:

We have delivered significant efficiencies since becoming a standalone company as evidenced by our marked downward trajectory of actual opex spend in the final 4 years of the regulatory period which has enabled us to outperform our opex allowances by c.2% during that period, compared to overspending against allowances by c.7% whilst under the ownership of National Grid. We have delivered significant opex savings of 20%; or £97m per annum (once normalised for one-off costs and workload adjusted) since Cadent's creation driven by successful transformation activities that drive enduring benefit to customers.

## Investment performance relative to allowances

For repex, the 15% outperformance delivered is driven by a combination of improved design and use of best practice, a focus on workload driving the most cost-efficient reduction in risk, on-going innovation and our long-term contracting approach. The lower efficiency during the final 4 years of RIIO-GD1 is reflective of the upward unit cost pressures we have faced in recent years driven by market pressures in the contractor market. As an example, in 2018/19 the average cost per metre was £203 compared to £217 in 2019/20 and rising sharply to £280 per metre in 2020/21 (based on Tier 1 HSE workload). Despite these higher costs in the latter RIIO-GD1 years we have still strived to deliver efficiencies against our allowances.

For capex, the significant overspend against allowances in the final 4 years of RIIO-GD1 reflects the step change increase in workload that was necessary to ensure delivery of our Asset Health Network Output Measures (NOMs) commitments which form part of the Risk Monetisation targets. By the end of the RIIO-GD1 period we have delivered the NOMs targets in each of our four networks, and in doing so (coupled with non-asset health activities), we have spent c.6% above our allowances. This is primarily a consequence of the higher unit cost pressures that have materialised in the wider market towards the final years of the regulatory period – the latter is also impacting our performance against allowances in respect of customer Connections, as the majority of these were delivered by our Gas Distribution Strategic Partners (Balfour Beatty and tRIIO).

## Totex performance versus last year's forecast

### Opex Performance compared to last year's forecast

Our opex cost in Year 8 of RIIO-GD1 out-turned c.£22m higher than forecast. Key drivers of the increase were one-off costs associated with our business transformation activities (c.£6m) incurred to drive long term enduring efficiencies, cost pressures directly attributable to the COVID-19 pandemic response of c. £5m in relation to items including PPE, staff absenteeism, enabling home-working etc, and c.£3.5m of indirect cost pressures such as stranded resource costs as a result of our workforce being unable to complete normal work activities as planned. The remaining costs increase relates to higher than expected workload and project activity.

### Investment Performance compared to last year's forecast:

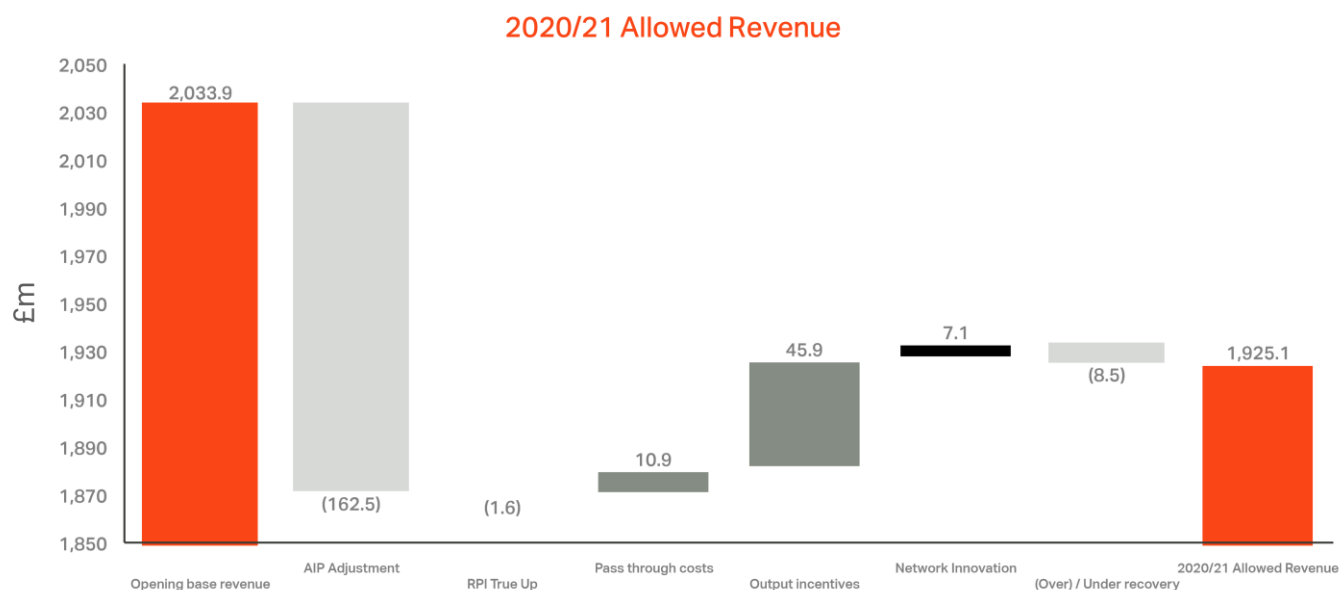
Our repex spend was broadly in line with forecast despite the impacts of the pandemic resulting in lower than planned delivery of mains decommissioned length, see section 1.3 for more details of our sector leading response to the pandemic.

Our capex spend was c.£34m lower than forecast partly driven by ongoing efficiencies in delivery, the timing of IS investments (£16m) and the impact of the COVID-19 pandemic on our planned investments. For example, we incurred lower spend (c. £3m) on vehicles due to production/delivery delays.

# Transportation Revenue

## Allowed Revenue

2020/21 Allowed Revenue for Cadent's networks was £1,925.1m. The chart and table below show a comparison of our opening base revenue as set in our RIIO-GD1 licence to Allowed Revenue charged to customers in 2020/21:



Allowed Revenue Summary (2020/21 Prices)	Eastern	London	North West	West Midlands	Cadent
Opening base revenue	684.7	479.1	497.6	372.6	2,033.9
Annual Iteration Adjustment	(46.9)	(44.0)	(39.7)	(31.9)	(162.5)
RPI True Up	(0.5)	(0.4)	(0.4)	(0.3)	(1.6)
<b>2020/21 Base Revenue</b>	<b>637.2</b>	<b>434.7</b>	<b>457.4</b>	<b>340.4</b>	<b>1,869.7</b>
Pass through costs	(18.0)	16.6	7.0	5.2	10.9
Exit Capacity incentive	10.4	4.5	5.6	2.4	22.9
Shrinkage incentive	0.7	0.8	0.5	0.4	2.4
Environmental Emissions incentive	3.2	3.2	2.3	1.9	10.6
Broad Measure of Customer Satisfaction	4.2	1.5	2.9	1.6	10.2
Discretionary Reward Scheme	-	-	-	-	-
Network Innovation Allowance	2.6	1.5	1.7	1.3	7.1
(Over) / Under Recovery brought forwards	(3.4)	(2.4)	(1.2)	(1.5)	(8.5)
<b>2020/21 Allowed Revenue</b>	<b>637.0</b>	<b>460.3</b>	<b>476.2</b>	<b>351.6</b>	<b>1,925.1</b>

## Annual Iteration Adjustment

The Annual Iteration Adjustment updates opening base revenue for items including the impact of Cost of Debt indexation, Tax Trigger adjustments, Totex incentive performance and adjustment to cost allowances in respect of Uncertainty Mechanisms.



The reduction to Base Revenue arising from the November 2019 Annual Iteration Process was £(162.5m) in 2020/21 prices.

Annual Iteration Adjustment (2020/21 Prices)	Eastern	London	North West	West Midlands	Cadent
Cost of Debt indexation	(40.3)	(30.2)	(28.5)	(21.7)	(120.7)
Pension deficit funding	8.7	4.7	5.6	4.2	23.2
Totex Incentive Mechanism	1.7	(7.8)	(4.4)	(5.0)	(15.5)
Shrinkage allowance reduction	(4.8)	(2.0)	(3.6)	(2.4)	(12.8)
Tax adjustments	(5.5)	(3.1)	(4.5)	(3.7)	(16.9)
Reduction to Xoserve costs	(5.4)	(3.1)	(3.7)	(2.9)	(15.0)
Enhanced site security uncertainty adj	(2.6)	(0.9)	(0.2)	-	(3.7)
Fuel poor network connection uncertainty adj	0.4	-	1.1	1.0	2.5
Specified streetworks uncertainty adj	1.3	0.7	0.5	-	2.5
Tier 2a Repex revenue driver	(0.4)	(1.6)	(1.3)	(0.8)	(4.1)
Other PCFM adjustments	(0.1)	(0.8)	(0.7)	(0.5)	(2.1)
<b>Total Annual Iteration Adjustment (2020/21 Prices)</b>	<b>(46.9)</b>	<b>(44.0)</b>	<b>(39.7)</b>	<b>(31.9)</b>	<b>(162.5)</b>
<b>Total Annual Iteration Adjustment (2009/10 prices)</b>	<b>(34.0)</b>	<b>(31.9)</b>	<b>(28.8)</b>	<b>(23.1)</b>	<b>(117.8)</b>

74% of this reduction was driven by cost of debt indexation, with the allowed percentage for the year determined at 1.09%, relative to the opening position of 2.92% in the RIIO-GD1 Final Proposals, demonstrating again how this mechanism has driven tangible savings for customers.

Totex Incentive Mechanism & Tax are the next largest contributors to the reduction was Totex performance, representing £15.5m & £16.9m respectively (both circa 10% reduction of the total). The Tax relates to a reduction in Corporation Tax rates relative to the opening assumption included in the Final Proposals. The actual Corporation Tax rate for the year being 19%, versus the 21% originally assumed.

- Following separation from National Grid, Cadent's pensions liabilities were sectionalised, with ongoing funding being set exclusively through base revenue, removing the element previously paid to National Grid via pass through costs in the longer term. This change equates to +£23.2m of the 2020/21 Annual Iteration Adjustment total.
- The November 2019 Annual Iteration Adjustment included the effect of agreed adjustment to allowances for items subject to Uncertainty Mechanisms namely RAT Tier 2A Replacement Expenditure.

## Revenue Collection

Revenue collection in 2020/21 was £4.9m or 0.25% lower than final allowed revenue. In the year to March 2021, Cadent reached an agreement with other networks and Shippers to enter into a 'COVID-19 Liquidity Relief Scheme' [UNC726]. UNC726 for Shippers provided some relief to Shippers that were experiencing temporary COVID-19 related liquidity constraints by extending payment dates for some Gas Transportation invoices. Repayment of any deferred invoices were required before the end of March 2021, so theoretically shouldn't have caused under-recoveries.

Key contributors of under-recovery were:

- Theft of gas recoveries in 2020/21 (which cannot be estimated prospectively) contributed £0.9m of the difference; and
- Change in chargeable volumes: when setting year ahead transportation prices, we need to make an assumption about how supply point volumes might change during the year. If the outturn position is lower than this assumption, this drives an under recovery, and conversely if higher, this drives an over recovery.

The following table outlines the revenue position in each of our networks in 2019/20

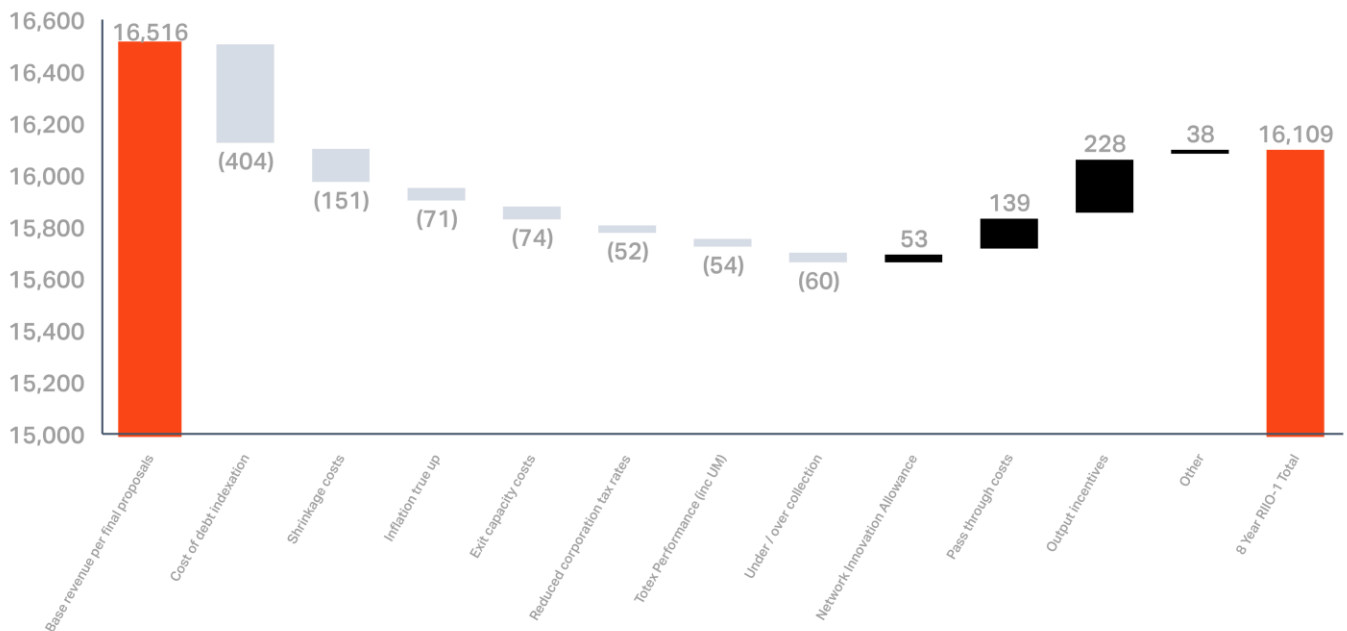
Revenue Collection	Eastern	London	North West	West Midlands	Cadent
2020/21 Allowed Revenue	637.0	460.3	476.2	351.6	1,925.1
2020/21 Collected Revenue	636.0	459.8	474.3	350.4	1,920.5
(Over) / Under Recovery of Revenue	1.0	0.5	1.9	1.2	4.7
% (Over) / Under Recovery of Revenue	0.2%	0.1%	0.4%	0.3%	0.2%

## Allowed Revenue Forecast

Our total allowed revenue for the RIIO-GD1 price control period was £407m (2.5%) lower in 2020/21 prices than our allowed Final Proposals. The chart below summarises the final allowed revenue position for RIIO-GD1 relative to the Final Proposals.

Our year 8 Allowed Revenue figure [£1,925m] in real terms was 10% lower than the year 1 equivalent figure [£2,140m], benefiting our Customer bills.

### 8 Year Allowed Revenue Total vs Final Proposals (20/21 prices)

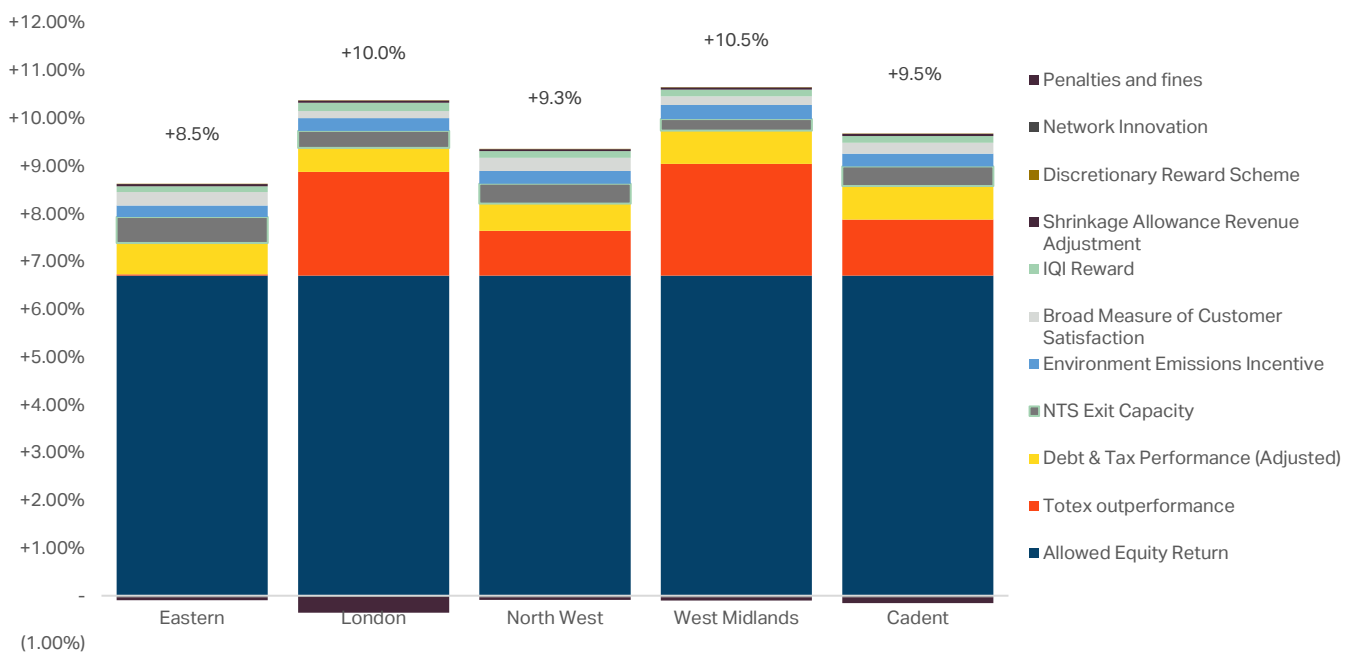


## Return on Regulatory Equity (RORE)

Our RIIO-GD1 eight year RORE performance is summarised in the following table and chart. Our method of RORE calculation is aligned to the approach used within the Regulatory Financial Performance Report (RFPR) templates with the exception of excluding enduring value adjustments. Further details can be found in the commentary supporting our RIIO-GD1 RFPR.

When RORE is analysed, it is important to understand the difference in performance in the first 4 years of RIIO-GD1 under National Grid ownership 10.05% and performance in the last 4 years under Consortia ownership 7.63%. We have incurred significant totex to transform the business and drive to the efficiency frontier; and deliver the 8 year output commitments.

RORE Performance (Excluding Enduring Value)	RIIO-GD-1						
	Eastern	London	North West	West Midlands	Cadent	Yrs 1-4	Yrs 5-8
Allowed Equity Return	+6.7%	+6.7%	+6.7%	+6.7%	+6.7%	+6.7%	+6.7%
Totex outperformance	+0.0%	+2.2%	+0.9%	+2.3%	+1.2%	+2.5%	(0.1%)
Incentive Performance	+1.2%	+1.0%	+1.1%	+0.9%	+1.1%	+1.0%	+1.2%
GSOP and Other	(0.1%)	(0.4%)	(0.1%)	(0.1%)	(0.2%)	(0.1%)	(0.2%)
<b>Operational RORE Performance</b>	<b>+7.9%</b>	<b>+9.5%</b>	<b>+8.7%</b>	<b>+9.8%</b>	<b>+8.8%</b>	<b>+10.0%</b>	<b>+7.6%</b>
Adjusted Debt and Tax performance - at notional gearing	+0.7%	+0.5%	+0.6%	+0.7%	+0.7%	+0.9%	+0.5%
<b>Total RORE Performance (Adjusted)</b>	<b>+8.5%</b>	<b>+10.0%</b>	<b>+9.3%</b>	<b>+10.5%</b>	<b>+9.5%</b>	<b>+11.0%</b>	<b>+8.1%</b>



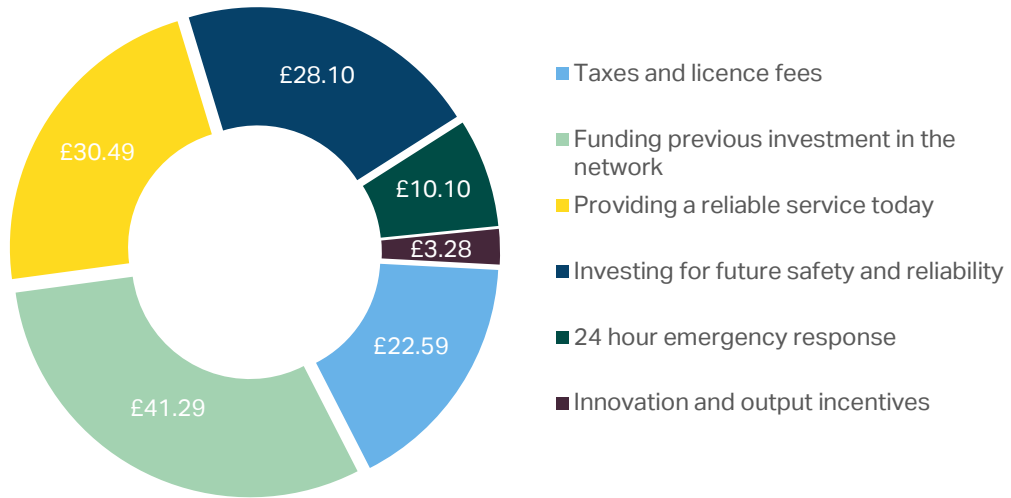
The outperformance of the cost of debt allowances (2.26% RORE) results from our sector leading cost of debt which outperforms the trailing average used in RIIO-GD1. This is largely attributable to the timing of the refinancing in 2017. Once the one-off costs associated with this refinancing are taken into account in the reporting, the outperformance is significantly lower (0.80%). Ofgem has agreed that the one off costs of the refinancing should be taken into account in setting RIIO-GD2 allowances and have agreed with our calculations. We show the RORE after the adjustment in the tables and charts presented as this provides a more accurate reflection of our performance.

## Breakdown of Customer Bill

### 2020/21 contribution to domestic energy bills

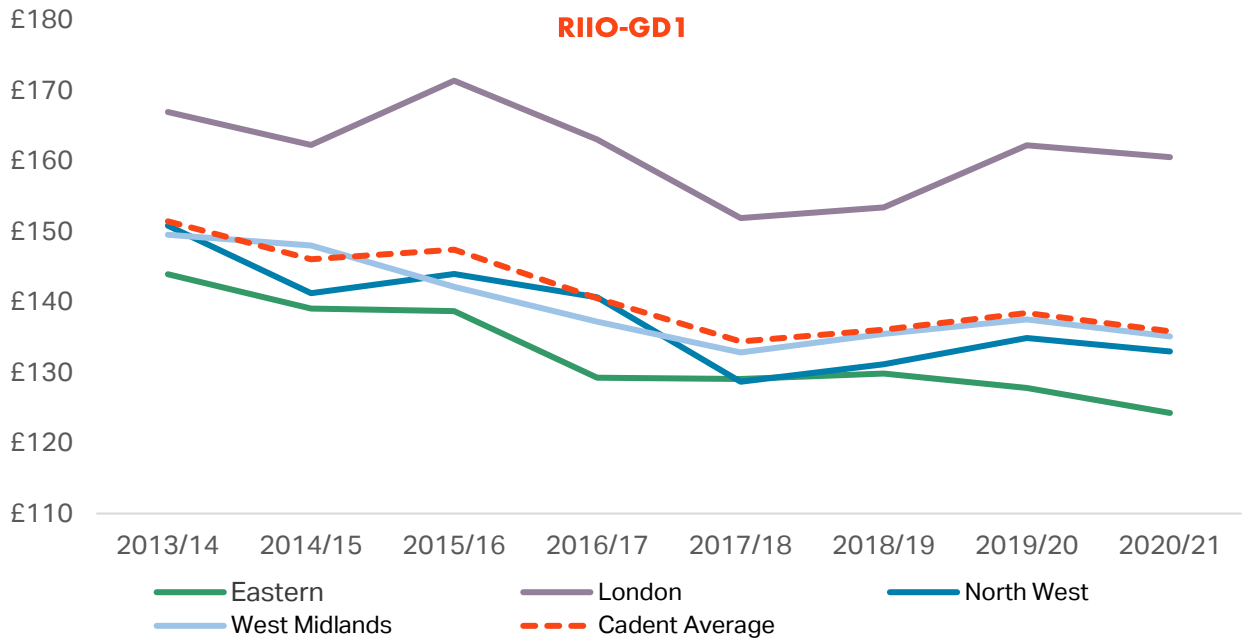
In support of our 2015/16 Annual Performance report, Cadent led on an initiative to develop a common methodology across GDNs for articulating domestic bill composition in a way that is meaningful for Customers. An updated position for 2020/21 is shown below:

### Breakdown of Cadent average customer bill



Taxes and licence fees	Funding previous investment in the network	Providing a reliable service today	Investing for future safety and reliability	24 hour emergency response	Innovation and output incentives
Taxes and business rates paid to central and local Government. Also includes the licence fee for industry regulation	Repaying the costs of past investments to construct today's network, like a mortgage.	Operating and maintaining equipment to transport gas to you safely and reliably	Replacement of old assets and extensions to the network to meet future needs	Taking your calls, attending gas emergencies and making safe	Innovation and incentive reward for improving customer experience and reducing carbon

Overall, we have seen that our contribution to average domestic energy bills has reduced by £16 per annum (or 10%) in real terms across RIIO-GD1 (represents circa 20% of customers' total gas bill).



### Cadent Customer Bill Breakdown 2020/21

Cadent Average domestic bill is £136, just **37p a day**

24 hour emergency response **£10**

Investing for future reliability and safety **£28**

Taxes and licence fees **£23**

**£3** Innovation and output incentives

**£30** Providing a reliable service today

**£41** Funding previous investment in the network

## Customer bill breakdown by network

### Customer Bill Breakdown 2020/21 - Eastern



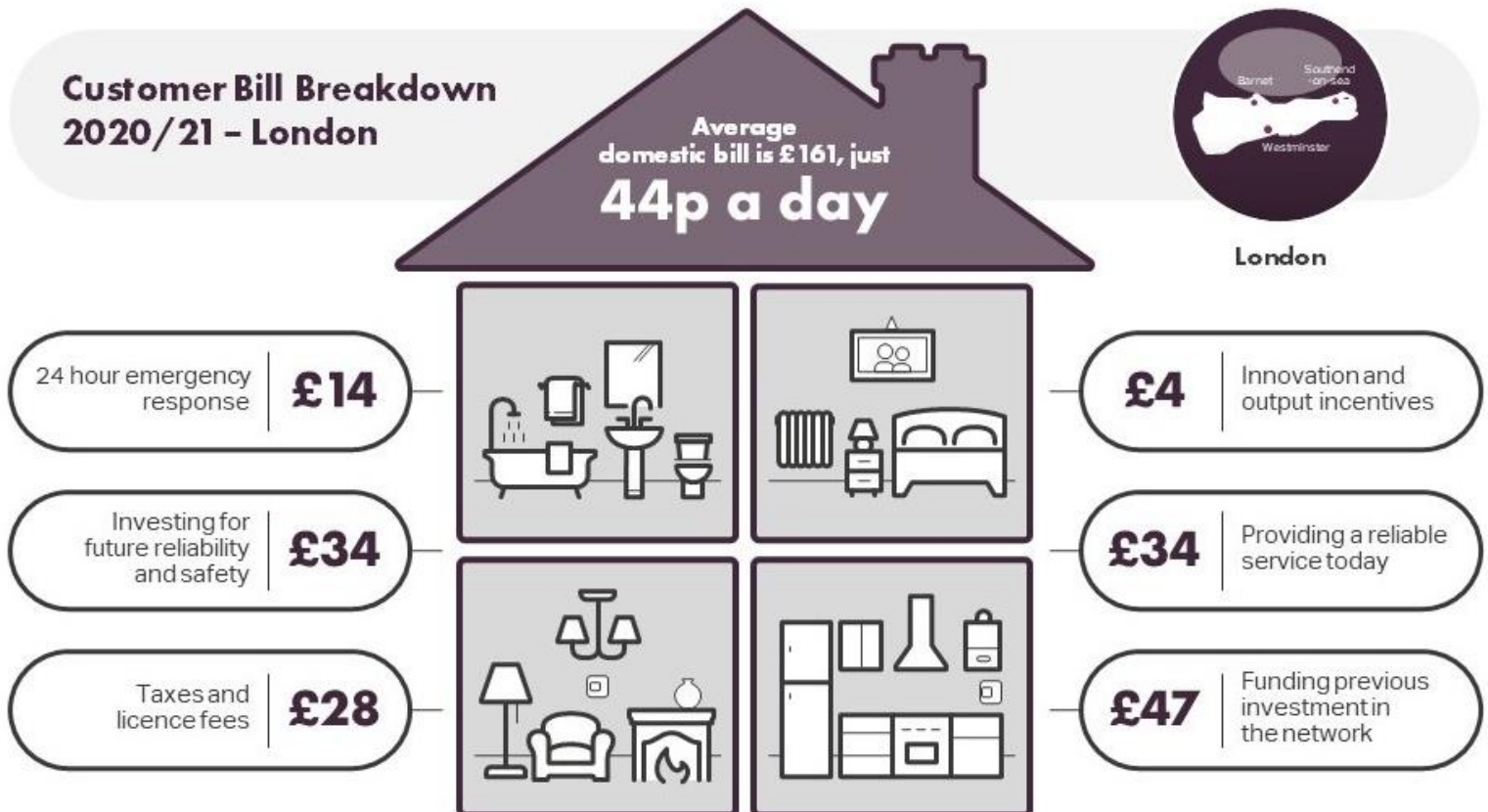
Eastern



### Customer Bill Breakdown 2020/21 - London



London



## Customer Bill Breakdown 2020/21 - North West

Average  
domestic bill is £133, just  
**36p a day**



North West



## Customer Bill Breakdown 2020/21 - West Midlands

Average  
domestic bill is £135, just  
**37p a day**



West Midlands





# 4

# Performance

# Summary

Our customers have told us what is important to them and what they expect from us; going above and beyond to be more flexible and focused on minimising disruption. We recognise our services need to be as inclusive and accessible as possible, understanding the diversity and geographical differences in our customers and communities.



## Delivering on our commitments

Our four networks have 28 Customer Operations Areas with clear accountability for meeting their own customer, regulatory, safety and financial targets and have the capability to deliver Emergency, Repair and Domestic Connection activity. The 28 Customer Operations Area Managers are undertaking a tailored training programme with customer service at its heart. They are supported by local contracts; in areas such as backfill and reinstatement support to drive increased customer satisfaction levels, improved performance and local strategies to reflect the communities we serve.

Our newly appointed Construction Management Organisations in each network are now in place to lead and support over 40 Local Delivery Partners delivering our mains replacements programme. These arrangements reflect pilot arrangements that have already been driving improvements in our delivery and the overall customer experience over the last 18 months. Each network also controls their own Investment Planning Office and has completed a delivery plan that meets the commitments we have made in our RIIO-GD2 Business Plan. A significant amount of planning and preparatory work has been the focus for us this year, as we have embedded the new structures across all operations

Across the period our output performance has been measured against a number of activities associated with the following categories:

**Safety**

**Reliability**

**Connections**

**Customer Services**

**Social Obligations**

**Environmental**

In the following section we explain what the measure is and how we have performed in 2020/21 (Year 8) and across the RIIO-GD1 period since 2013/14.

and our customer facing teams to lead with autonomy and insight to improve our customer experience commitments.

As well as developing these new arrangements and despite the impacts of COVID-19, we've continued to drive the programme to deliver against our RIIO-GD1 Ofgem and HSE targets with delivery rates, outside of lockdown restriction periods, the highest of the prior eight years.

Further structural change has seen newly created leadership positions and teams such as:

- Heads of Customer Experience, who take a lead responsibility for understanding current customer experience journeys and working collaboratively with operational leaders to drive change and enhance levels of satisfaction;
- Commercial Director, Steve Hunt who leads the Commercial teams to manage and improve supply chain relationships and drive better performance throughout our local partnerships.

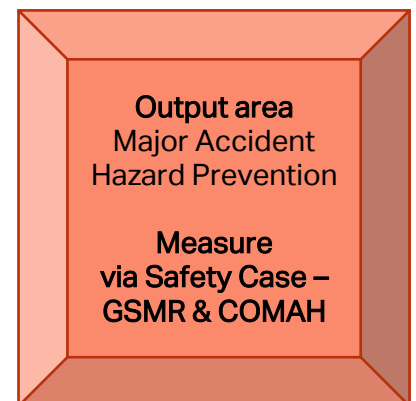
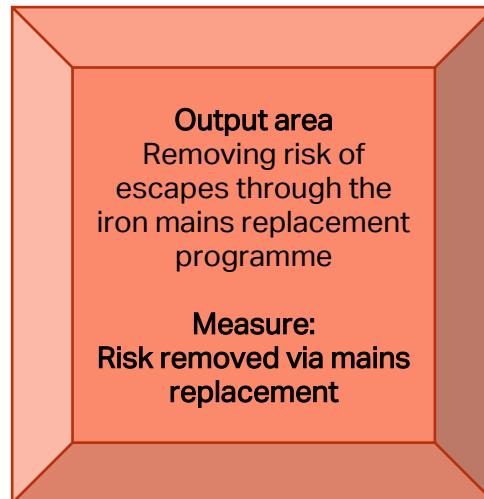
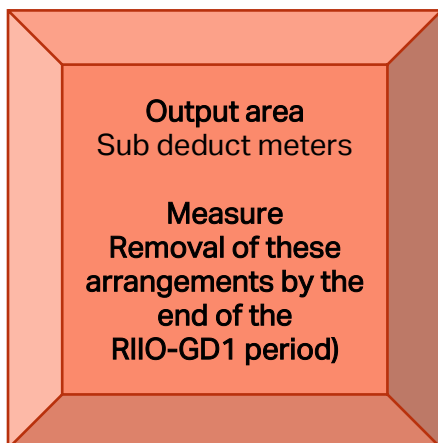
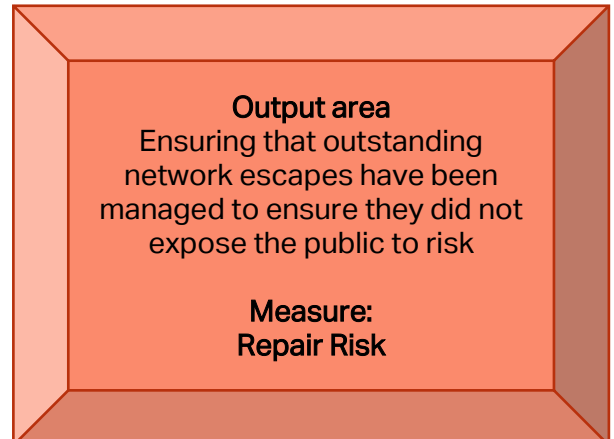
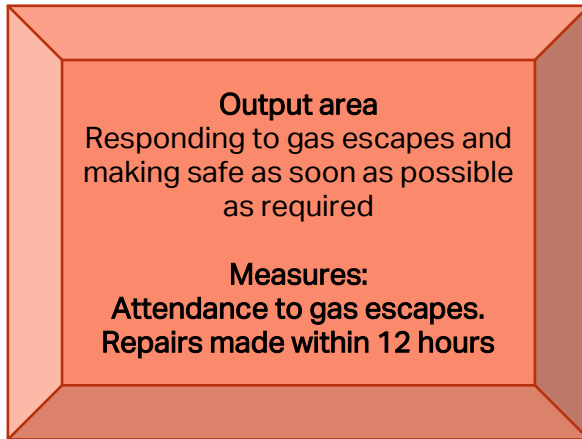
As we have made these changes to our operating model we have welcomed c. 600 colleagues who are now directly employed by us and who bring their talent, knowledge and experience into the business.

We have also taken this opportunity to change the name of our East of England network to Eastern.

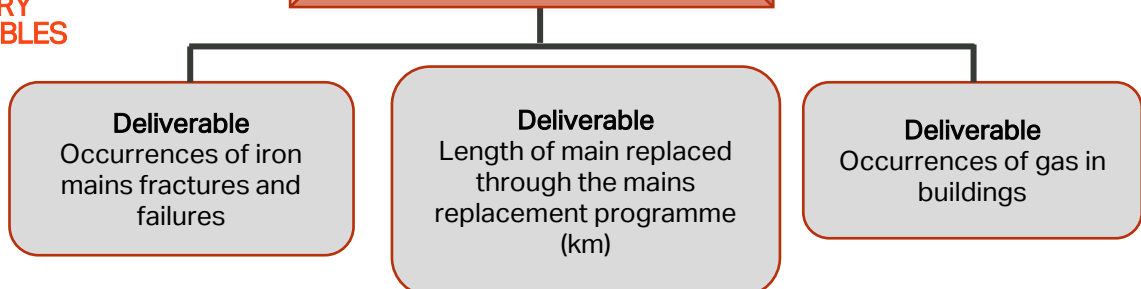
## 4.1 Safety

Keeping our customers, communities and colleagues safe, warm and connected across each of our four networks is our top priority. How well we manage gas emergencies, escapes and the safety of our networks is measured against the following primary outputs and secondary deliverables.

### PRIMARY OUTPUTS



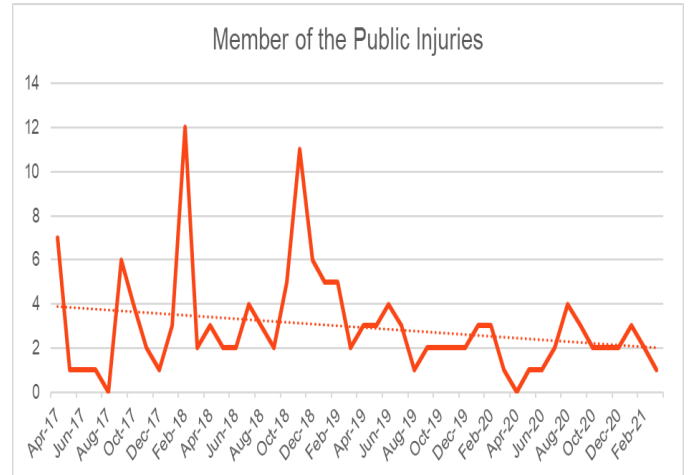
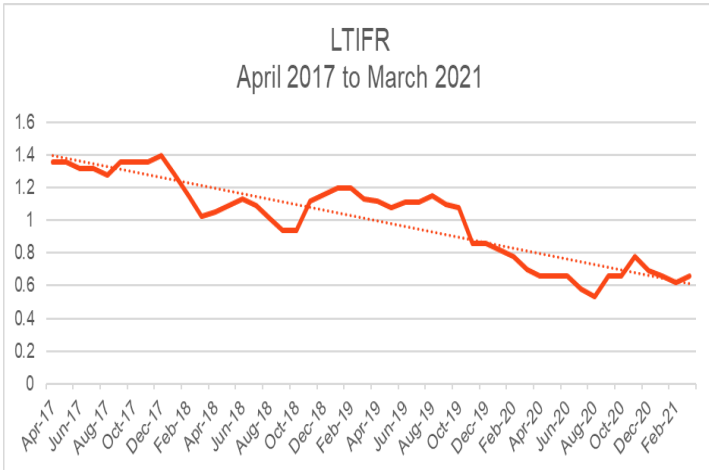
### SECONDARY DELIVERABLES



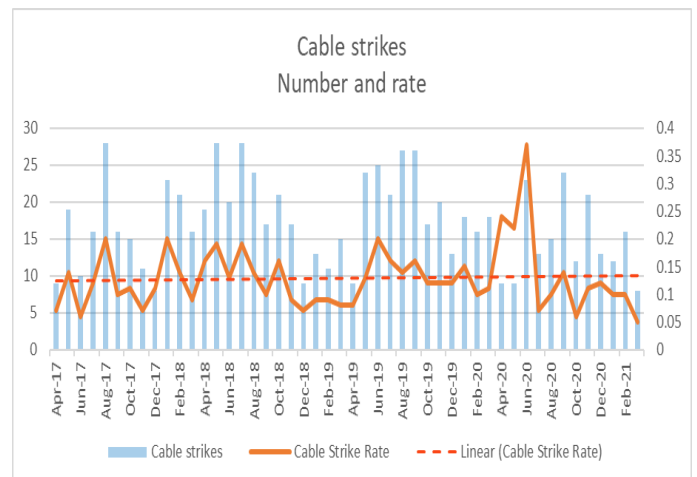
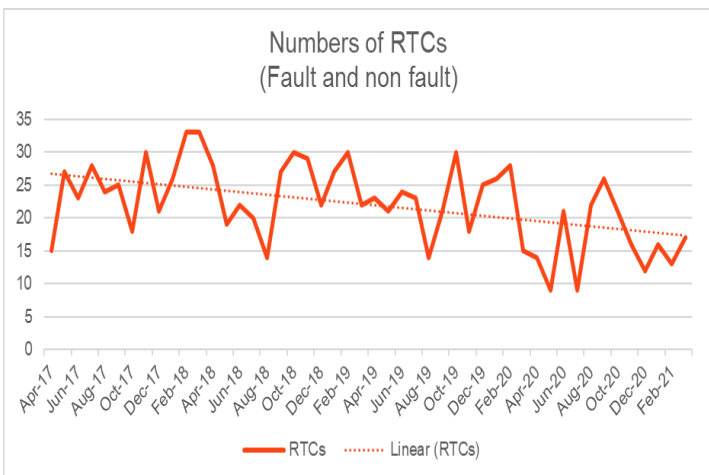
## Major accident hazard prevention

The safety of the public and our colleagues is of paramount importance to us and our current Gas Safety (Management) Regulations Safety Case is approved by the HSE as required by our Licence. As shown in the following graphs, across the RIIO-GD1 period we have continued to drive improvements in safety performance which have underpinned our operational performance and the service we provide to our customers. Whilst not specifically regulatory outputs this demonstrates our commitment to the safety of the public and our colleagues.

### Lost Time Injuries associated with Cadent colleagues



### Road Traffic Collisions



## Responding to gas emergencies

We have continued to provide an efficient world class emergency service across the RIIO-GD1 period, (delivering a 24/7 call centre and emergency response to public reported escapes) as demonstrated by our strong performance against the following safety measures;

### Answering emergency telephone calls

Measure: 90% of calls answered in 30 seconds

We operate the National Gas Emergency Service contact centre, taking calls and giving safety advice on behalf of all gas networks.



In 2020/21 we answered circa **1.4 million calls** of which **92%** were **answered within 30 seconds** exceeding the performance level set out in our licence.

Since the start of the RIIO-GD1 period in 2013/14 and **over the 8 year price control period** we've answered over **15 million calls** and **over 14 million (93%)** have been **answered in 30 seconds**.

We provide a gas emergency service free at the point of use which keeps people safe and warm in their homes and businesses. We respond to internal and external gas escapes and also to potential cases of carbon monoxide poisoning from appliances.

### Attending to an emergency

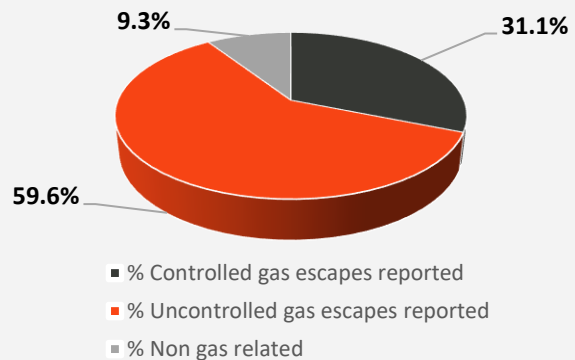
Measure: Controlled gas escapes – attendance in 2 hours (in 97% of cases)

Measure: Uncontrolled gas escapes – attendance in 1 hour (in 97% of cases)

In 2020/21 and across the RIIO-GD1 period we have **consistently exceeded the primary 97% performance level** set out in our licence for both controlled and uncontrolled gas escapes in all of our networks. This is despite the coldest January in a decade and the significant storm events of Bella and Christoph, combined with the national lockdown.

As shown in the chart 59% of calls are classed as "uncontrolled" gas escapes where our engineers respond within the hour.

Breakdown of calls received in 2020/21



To enhance attendance further we've recently expanded our rapid response fleet, with our emergency biker capability now including North London, North West and Eastern networks. This is enabling our First Call Operatives (FCOs) to negotiate tighter traffic spaces, and the potential to reach life threatening incidents much faster than by conventional van, as well as making a positive contribution to our average response time which is currently 32 minutes (down from 35 minutes in 2017/18).



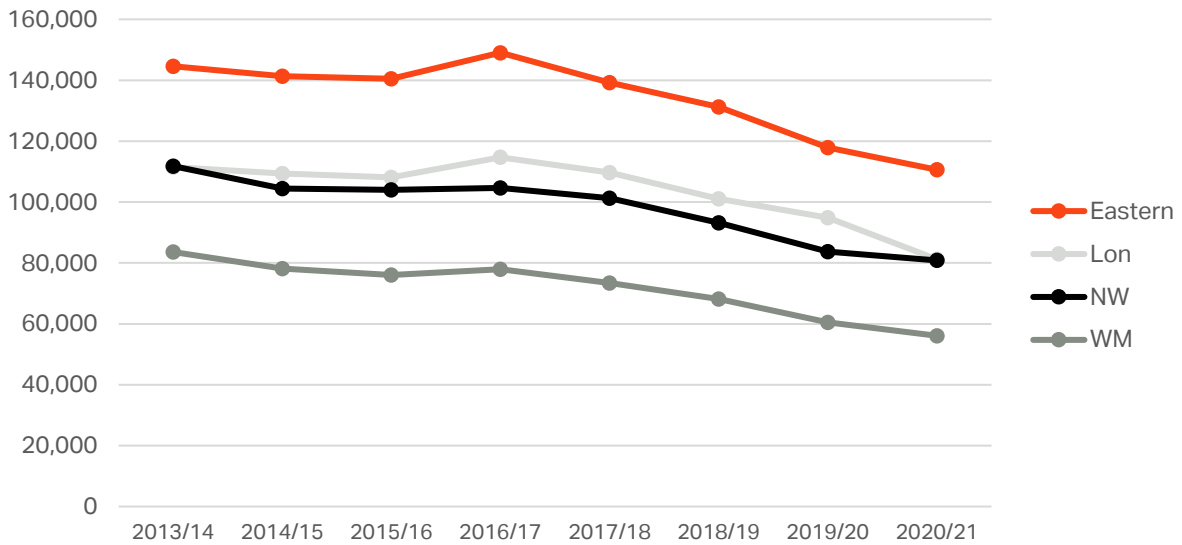
Our Cadent Fleet Specialist commented:

"The motorbikes enable our engineers to get to incidents faster but with enough onboard storage capacity to still carry the tools and equipment they need to safeguard life and property. They're especially useful in congested urban areas like London, Manchester and around the M25 in places like Hertfordshire, as our engineers can filter around and through the traffic and get to where they're needed fast." "Though we're not a blue light service we have found that motorists are very receptive in letting our riders filter through."

During the year we attended over 320,000 public reported gas escapes (PREs) making a total of circa 3.2 million across the RIIO-GD1 period. During the first quarter and as a result of the first lockdown period we saw a reduction in PRE's. To mitigate future risks of gas escapes we proactively increased our leakage surveys and conducted an advertising campaign through a variety of media channels to encourage the public to contact us in the event of a gas escape. Both of these actions were commended by the HSE.

As shown in the graph below and as reported last year as we have continued to remove risk from the network through the mains replacement programme and innovation techniques such as CISBOT this has resulted in a downward trend across the RIIO-GD1 period in all of our networks.

**Trend in Public Reported Escapes across RIIO-GD1**



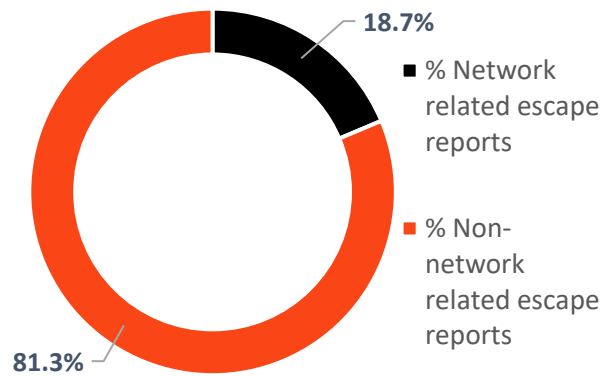
## Proportion of Gas Escapes Prevented Within 12 Hours

This particular output is a measure of how well we manage repairs on our network, ensuring the safe and reliable flow of gas to customers and we work hard to keep our customers safe, warm and connected.

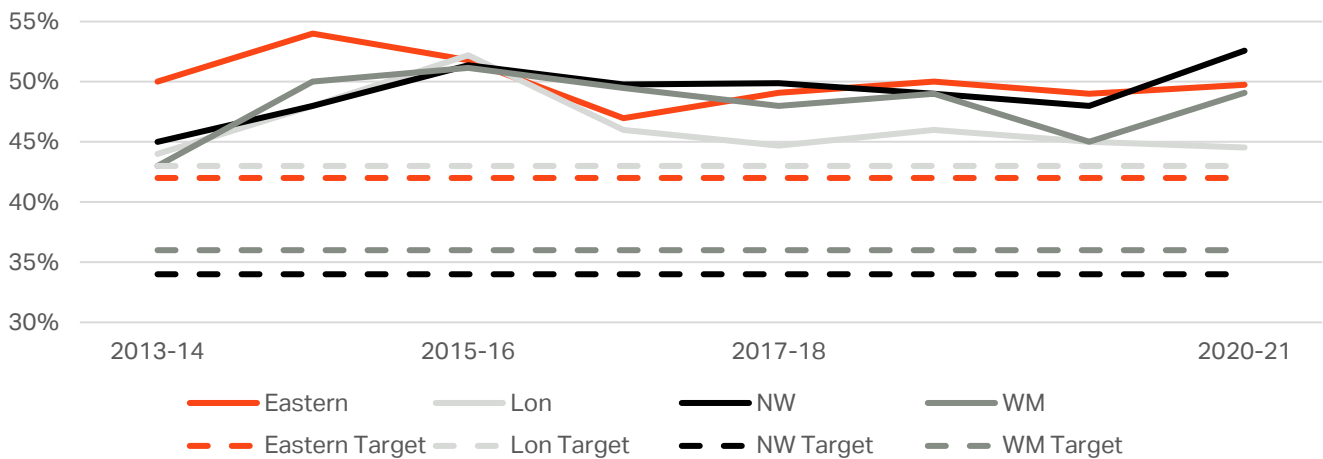
In 2020/21 we attended over 68,000 emergencies directly related to our network (c.664,000 across the RIIO-GD1 period), which is in line with the downward trend we have seen in the volume of PREs. As seen in the diagram this represents circa 19% of all emergencies that we attend. The majority of our repair work (circa 81%) relates to emergencies involving customer appliances, internal pipes and meters and these are not Cadent's assets.

In all of our networks across the RIIO-GD1 period (and as shown in the graph) we have continuously outperformed against the targets set in our Final Proposals for 12 hour emergency response times, ensuring that our customers are not without a gas supply for longer than necessary.

## Breakdown of report category across the RIIO-GD1 period



## Gas Escapes Prevented within 12 hours



We're continuing to use innovation and recently in our North West network have obtained the services of specialist working dogs who are highly trained to detect leaks in our network at an earlier stage than conventional gas detector technology.



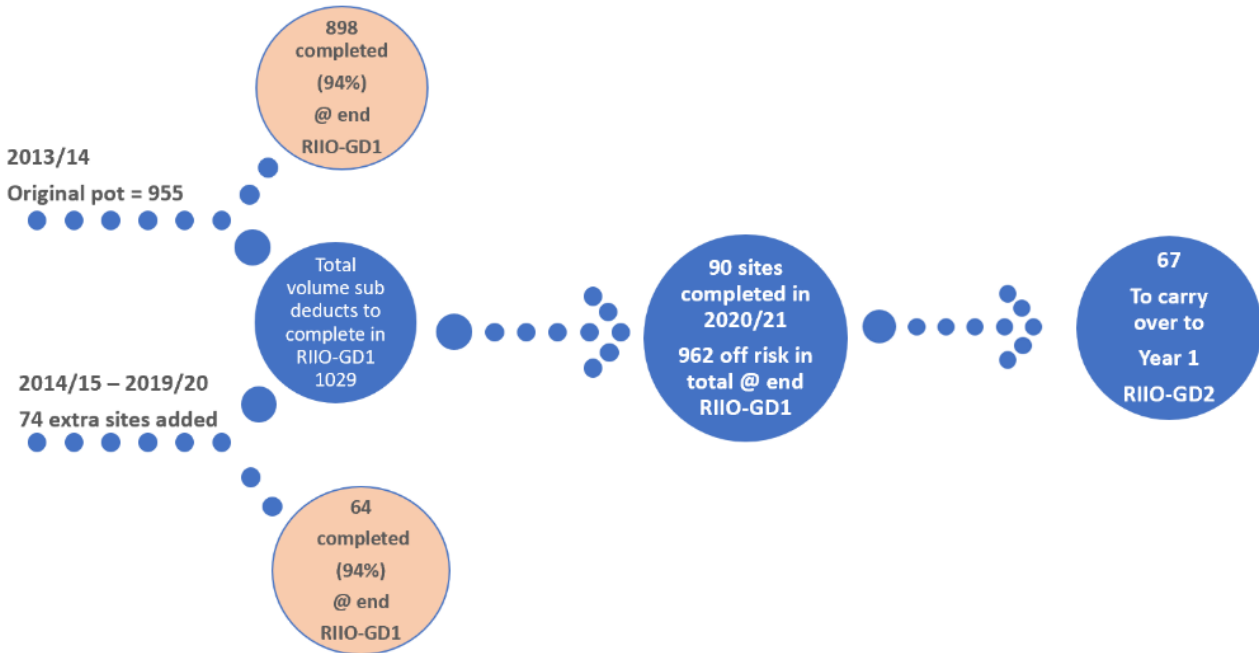
## Repair risk

Meeting the repair risk target has been challenging for all of our networks (significantly more so than the targets of other GDNs which are much less stringent) during RIIO-GD1 but despite this all networks have maintained risk scores below those set at the start of the RIIO-GD1 period, as shown in the diagram below. In London in particular we have frequently moved teams from our other networks and critical tasks to maintain the required annual score. This year the COVID-19 restrictions have limited our ability to move teams between networks and due to its impacts overall we have placed higher priority on activities that are more beneficial to customers such as provision of connections.



## Sub-deducts networks off-risk

Sub-deduct networks are located on a network downstream of the gas transporter’s primary emergency control valve and are linked to historical asset arrangements that are no longer installed. The work in this area is focussed on determining ownership of the pipework that runs beyond the valve and if necessary either develop an engineering solution to remove the arrangement, refurbish it or replace the sub- deduct network in those instances where the premises owner does not wish to retain ownership for the asset.



The diagram shows the progress we have made with removal of sub deducts over the RIIO-GD1 period

At the start of RIIO-GD1 we had 955 sites with a further 74 identified in subsequent years and our 8 year RIIO-GD1 target has been revised to complete 1029 sites.

In total we have taken 962 sites off risk and had plans to remove all remaining sub deducts in year eight, however we were significantly disrupted by the COVID-19 pandemic in the following ways:

- **Closure of businesses and education facilities** - the majority of sub deduct arrangements are located in Industrial and Commercial premises, which has curtailed both customer engagement and site access for work. Other sites include prisons, schools, Ministry of Defence establishments and Royal palaces many of which have unique access challenges.
- **Resource prioritisation** – in order to protect critical safety processes (e.g. gas escapes) there has been a need to redeploy our workforce to ensure we keep gas flowing safely.

As the COVID-19 pandemic position has stabilised and restrictions have eased, plans have been reset to substantially complete the majority of the remaining sites by the end of July 2021, with the intention that all will be completed by the end of 2021/22 subject to any further COVID driven delays.

## Iron mains risk removed

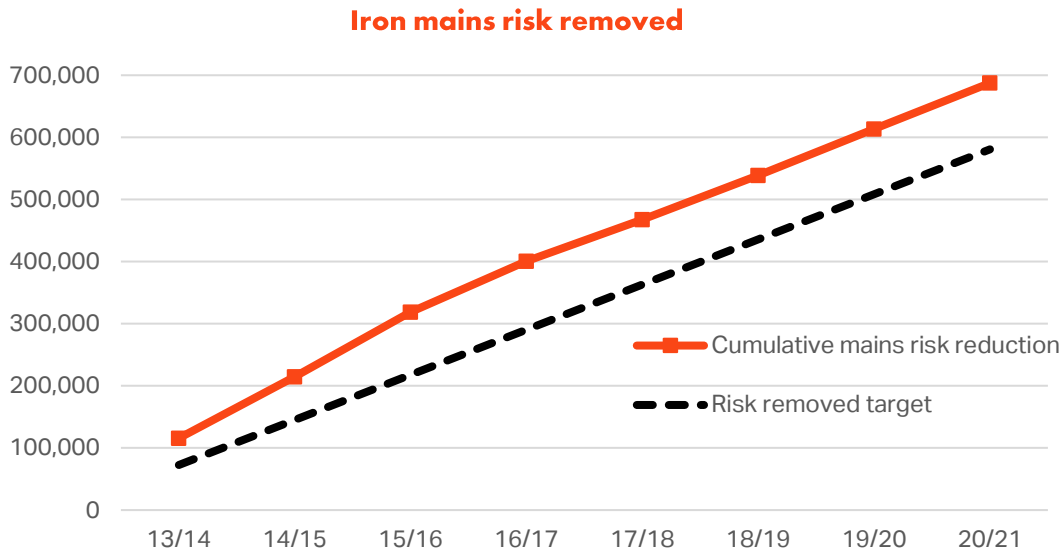
The mains replacement programme is aimed at removing all iron mains within 30 metres of a property over 30 years, (the '30/30 programme'). Under the RIIO-GD1 framework GDNs have been set the primary output of **risk removed** as a measure of their performance in reducing the level of risk associated with the iron mains programme and this is an 8 year target.

We reported previously that Eastern and North West networks had already exceeded their risk removed targets in 2019/20. As outlined in our COVID statement in section 1.3 our mains replacement programme was impacted by the effects of the pandemic, however, despite this we are pleased that our West Midlands and London networks also exceeded their eight year targets this year as shown in the table below.



Network	Final Proposal target (incidents/year x10-6)	Actual 2020/21 (cumulative)
Eastern	192,567	242,767
London	102,281	102,552
NW	154,428	200,262
WM	131,394	141,872
<b>Cadent total</b>	<b>580,670</b>	<b>687,453</b>

The graph below shows how we have performed against the risk removed target across RIIO-GD1



There are a number of secondary deliverables that we are required to report against to enable a better understanding of our performance against the risk removed primary output and in the following section we explain our performance in relation to these;

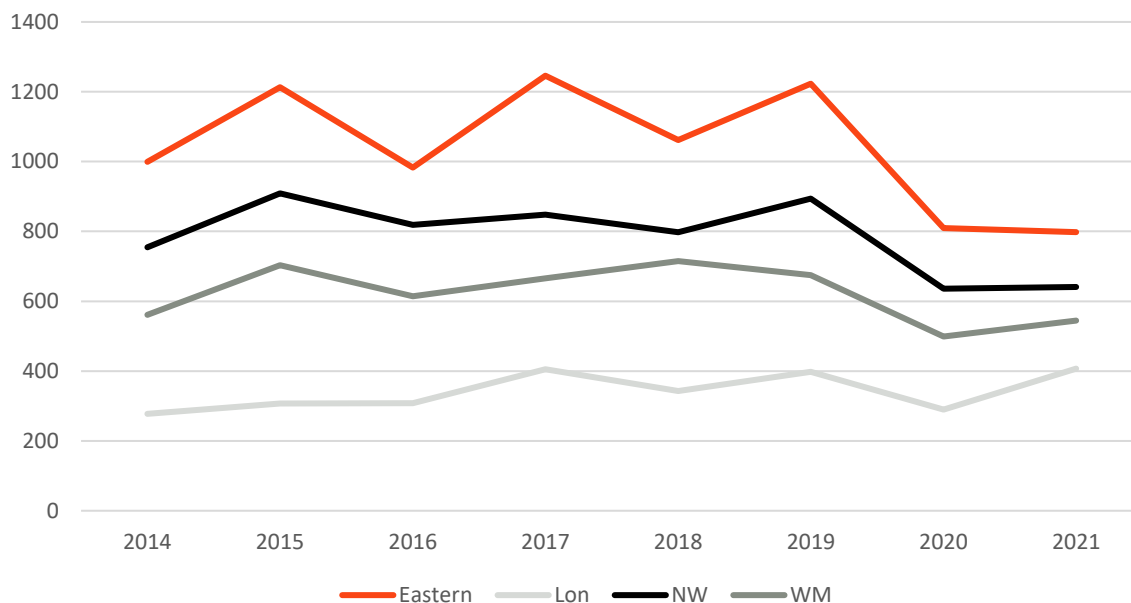
- (i) occurrences of cast iron/spun iron mains fractures and ductile main failures;
- (ii) occurrences of gas in buildings;
- (iii) length of main "off risk"; and
- (iv) asset health and risk metrics.

### Fractures and corrosion

Fractures and corruptions can occur in various ways with the main factor being through asset deterioration. Our investment plans and particularly our mains replacement program, is designed to manage this and the increase in the amount of more durable polyethylene (PE) pipes in our network is not only reducing the potential for fractures and corrosion occurring but also removing risk and making our network safer. As described in our narrative for Public Reported Escapes (PREs) weather and ground movement can also be contributory factors.

During 2020/21 we completed 2,391 fractures and corrosion repairs which is an 8% reduction since the start of RIIO-GD1 and aligns with the reductions observed more generally across PREs, and repair risk across the period. We are pleased with this outcome but recognise that the trend since the start of RIIO-GD1 is broadly flat and hence our focus into RIIO-GD2 remain targeted on activities that contribute to managing this risk.

## Cast/spun iron fractures and ductile iron corrosion failures

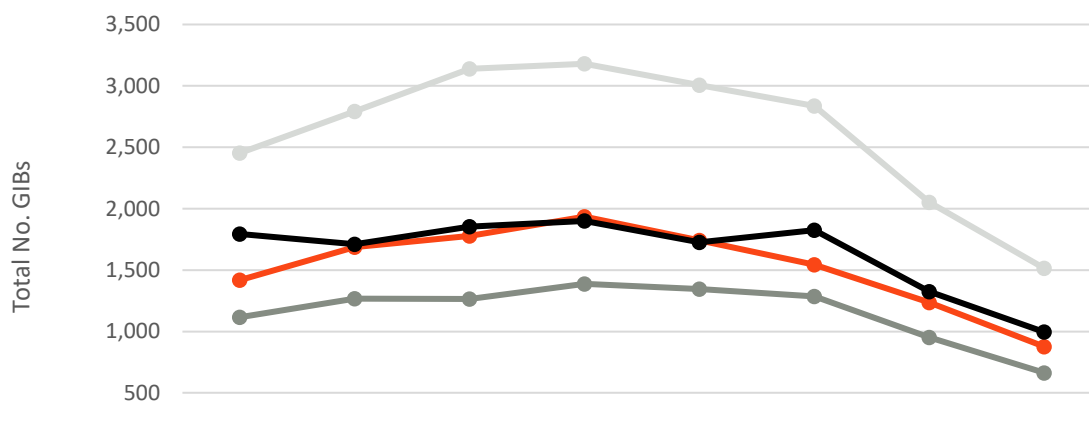


## Gas in buildings (GIBs)

Gas in Buildings (GIBs) is a measure of the number of gas escapes on a network pipe upstream of the Emergency Control Valve (ECV) which results in gas entering a building. Gas can enter the building in a few ways such as – along the line of a service, through an open escape near a property or through an escape within the property.

This year we have seen a 28% reduction in the volume of GIBs which aligns with the general trends we have seen for fractures and public reported escapes and can be attributed to the increase in the volume of polyethylene pipe installed as part of our mains replacement activities.

## Total network GIBs



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Eastern	1,419	1,688	1,778	1,935	1,741	1,544	1,237	877
London	2,454	2,793	3,140	3,180	3,005	2,838	2,052	1,515
North West	1,795	1,710	1,854	1,900	1,727	1,826	1,326	996
West Midlands	1,116	1,267	1,264	1,388	1,346	1,286	953	664

## Iron mains risk reduction - 'length of main off risk'.

In 2020/21 we were able to replace 1743km, which compares with an annual average length of 1691km over the preceding 7 years of the price control. During this period our delivery plans included the continued use of the Construction Services Delivery Model we successfully implemented last year as well as using direct labour and

at the end of the RIIO-GD1 period we have replaced 13,543 km delivering 94% of the secondary deliverables target set out in the Final Proposals. We have continued to maintain regular dialogue with the HSE throughout the pandemic and they have confirmed that they are satisfied, based on the mains replacement progress prior to the pandemic and optimal measures taken since, that we would have met our Tier 1 target had COVID-19 not occurred. They are further satisfied that we have therefore complied with its approved programme so far as is reasonably practicable and that any inability to comply is outside of its control.

In total across the RIIO-GD1 period we have improved the safety of our network by replacing

**OVER 14,000km of mains (including diversions)**

*(that's roughly the length of the whole of the UK coastline)*

**AND OVER 1.2 million services to customers homes and businesses in our network.**



CISBOT innovation – (Cast Iron Sealing Robot) has made a great contribution to our mains replacement programme in our North London, Eastern and North West networks.

In 2021 we delivered 28.2km of refurbishment through CISBOT - that's over 50km contribution since its introduction in 2018/19.



The tables below provide details of the lengths delivered by diameter, number of joints and costs per network as well as the totals delivered to date by this technique. Whilst we recognise that unit costs are higher than for conventional mains replacement this innovative technique has made it easier for us to work in locations where there is a high degree of congestion and gaining approval to undertake road works is difficult. It minimises disruption to the public and also allows us to extend the life of our asset by 20 years whilst.

	Eastern 20/21			London 20/21			
	>355mm to 500mm	>500mm to 630mm	Total	>355mm to 500mm	>500mm to 630mm	>630mm	Total
<b>CISBOT Length (km)</b>	1.657	1.759	3.416	4.982	10.764	6.743	22.489
<b>CISBOT Joints</b>	444	470	914	1482	3306	1817	6605
<b>Cost</b>	£490,392	£649,307	£1,139,699	£2,884,846	£7,459,186	£5,573,962	£15,917,995
<b>Cost Per Metre</b>	£295.95	£369.13	£333.64	£579.05	£692.98	£826.63	£707.81

	NW 20/21			
	>355mm to 500mm	>500mm to 630mm	>630mm	Total
<b>CISBOT Length (km)</b>	0.512	1.149	0.659	2.32
<b>CISBOT Joints</b>	102	307	110	519
<b>Cost</b>	£121,394	£558,341	£388,694	£1,068,429
<b>Cost Per Metre</b>	£237.10	£485.94	£589.82	£460.53

	2018/19 London	2019/20 Eastern/NW/London	2020/21 Eastern/NW/London
	Total	Combined total	Combined total
<b>CISBOT Length (km)</b>	3.81	17.6	28.2
<b>CISBOT Joints</b>	1134	5002	8038
<b>Cost</b>	£2,757,627	£13,231,551	£18,126,123
<b>Average Cost Per Metre</b>	£724	£752	£642
<b>Average Cost Per Joint</b>	£2,432	£2,645	£2,255

Please note: In line with Ofgem's request the mains refurbishment associated with CISBOT has been reported in Table 5.2c (Repex other mains), and for consistency we have also aligned the decommissioning of these pipes to Table 5.8 (Decommissioned summary)

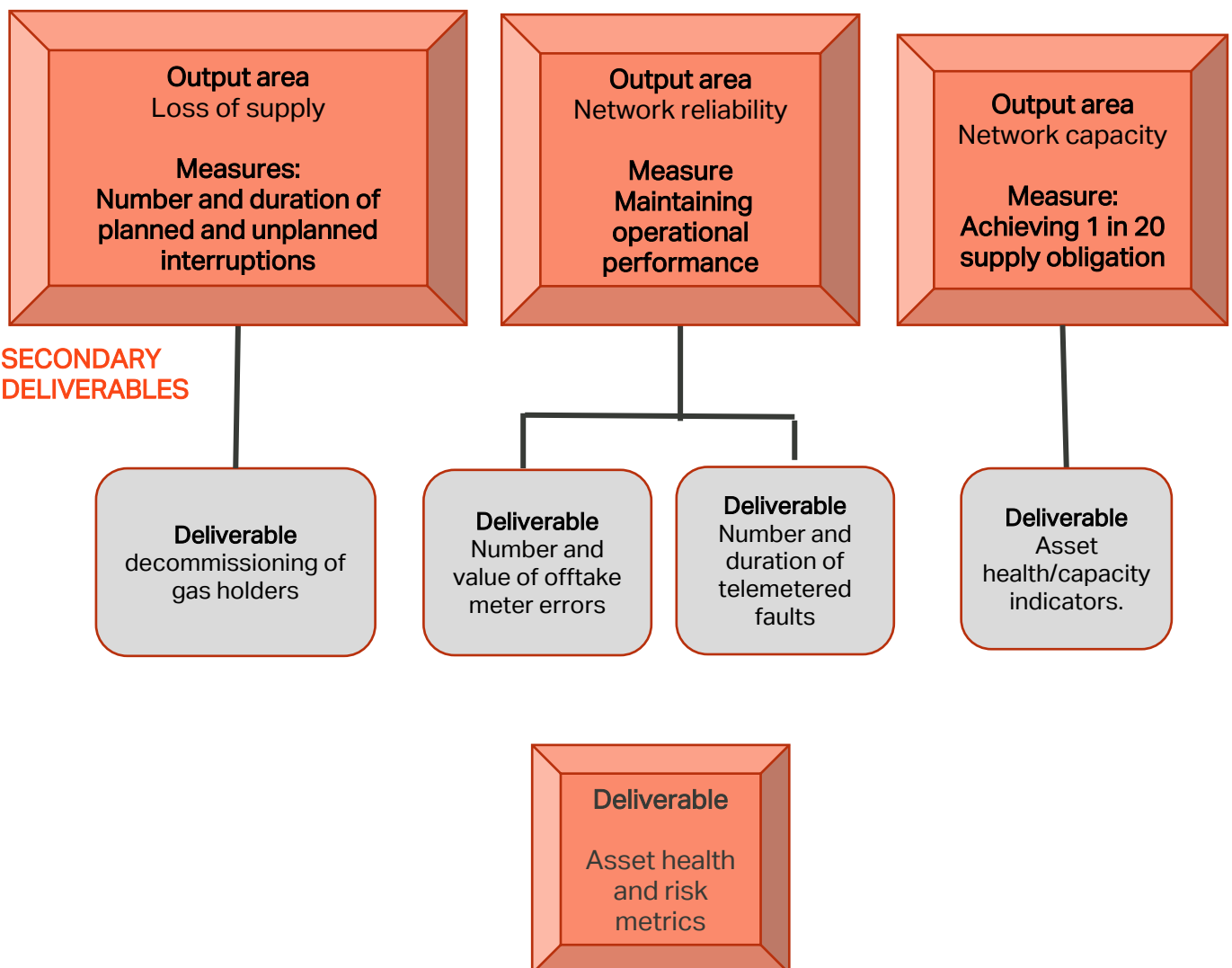
## 4.2 Reliability

Maintaining a safe and reliable gas supply that keeps our customers, colleagues and the general public safe is the most important part of what we do. We are the largest gas distribution company in the UK providing an essential service that keeps the energy flowing to over 11 million homes, offices and businesses 24 hours a day 365 days a year. At peak times, the gas network supplies over four times more energy than the electricity network.

We have performed well in meeting our legal and regulatory requirements over the years, but we want to do even better. This includes investing to improve the health of our pipes and other assets and keeping disruption to a minimum if we need to carry out repairs. We have come a long way since we separated from National Grid in 2017, we have transformed our business operations and culture putting customers and stakeholders very much at the centre of all we do. We have an ambitious plan for RIIO-GD2 to reduce the number and durations of unplanned interruptions and we are committed to **“Going beyond to never leave a customer vulnerable without gas”** and to **“Transforming the Experience for Multiple Occupancy Building Customers”**, ensuring customers have a safe reliable supply of energy whenever they need it.

In the following section we explain how we have performed against the following primary outputs and secondary deliverables in RIIO-GD1;

### PRIMARY OUTPUTS



## Loss of supply - Minimising disruption for our customers.

Our customers expect gas to be there when they need it and expect us to respond quickly when it isn't.

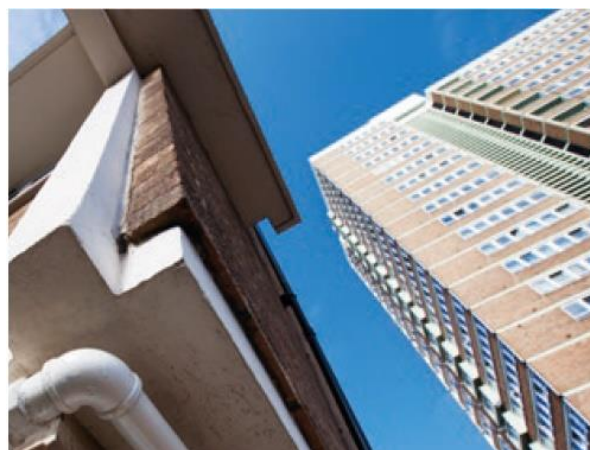
Loss of supply can occur in two ways;

- either through **Planned interruptions** which occur during work associated with our mains replacement programme, or
- through **Unplanned interruptions** which happen unexpectedly and at any time of day or night.

In 2020/21, we have continued our focus on reducing the number of times customers gas supply is interrupted and increasing the speed at which we get their gas switched back on when there is a problem. This has been underpinned using innovative techniques such as live service transfers and the Microstop bypass system. These techniques have enabled us to keep gas flowing for our customers whilst the repair is carried out and we believe from discussions with others that we are now industry leading in how we are managing experiences for our customers in multi occupancy buildings (MOBs).



The Microstop technique has completely transformed the service we can provide to customers in multi occupancy buildings



We are pleased to share highlights of how, through a combination of innovation, transformation of our business operations and improvements in our processes, our performance in 2020/21 has improved resulting in a step change in the service we provide to our customers and giving us a stable platform on which to build and grow as we move forward into RIIO-GD2;

Volume of interruptions	Duration of interruptions
<p>Our total <b>volume of planned</b> interruptions is <b>c. 6% lower than the 8 year price control target</b> and</p> <p>The total <b>volume of unplanned</b> interruptions is <b>c.15% lower than the 8 year price control target</b></p> <p>All four of our networks interrupted less customers than were anticipated and set out in the respective interruptions targets.</p>	<p>The <b>total durations of planned interruptions are c.15% shorter than the 8 year price control target</b> in all 4 of our networks.</p> <p>The <b>total durations of unplanned interruptions are less than the 8 year price control target</b> in Eastern, North West and West Midlands networks, but unfortunately we exceeded the target in North London due to the population of more complex multiple occupancy buildings (MOBs). We are disappointed that our customers did not receive the service they should expect but our performance over the last two years is now industry leading and is giving these customers a much better experience and we will continue this improvement into RIIO-GD2.</p> <p><b>Since 2019/20 the total durations for unplanned interruptions has reduced by 26% (saving 14million minutes).</b></p>

## Our interruptions performance

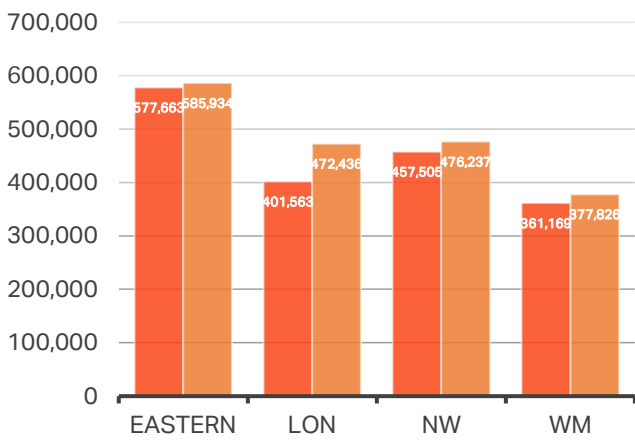
The following section contains more detail on our progress towards achieving the year eight RIIO-GD1 target for numbers and durations of planned and unplanned interruptions.

### Planned interruptions

In general, when we have needed to interrupt our customers as a result of a planned interruption we have worked hard to minimise the inconvenience and the average time across Cadent for this disruption has reduced from c.7.5 hrs in 2013/14 to c.5.5hrs in 2020/21. The number of planned interruptions has reduced significantly across all our networks since 2013/14 with London showing the largest reduction of 47%. This is lower than last year and represents a 6% reduction in the number of interruptions per km of mains replaced and is the fewest number of interruptions per km of mains replaced that we have recorded since the start of the price control period.

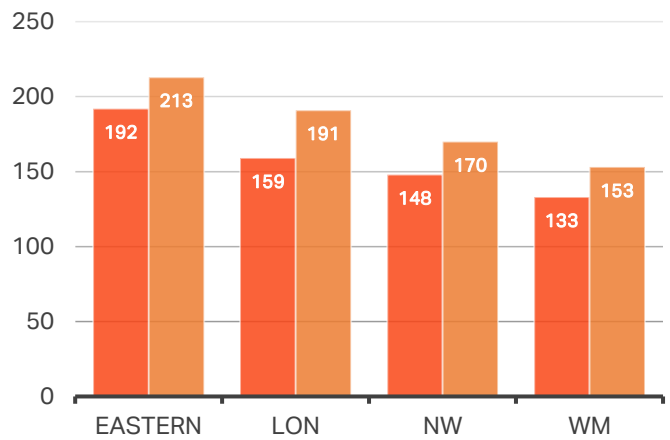
The graphs below show our overall performance in each network for the numbers and durations of planned interruptions against our revised planned interruptions targets for RIIO-GD1.

**Total Planned Interruptions Volumes**



- Total performance vs target (Cumulative total to year 8)
- Revised Targets set in 2018 (cumulative 8 year total)

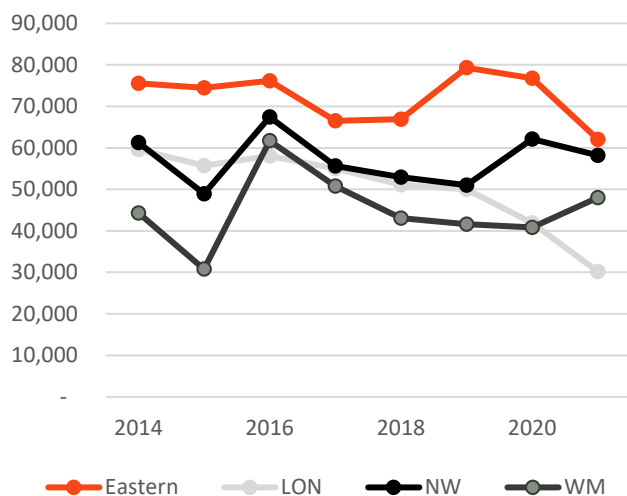
**Total Planned Interruptions Durations**



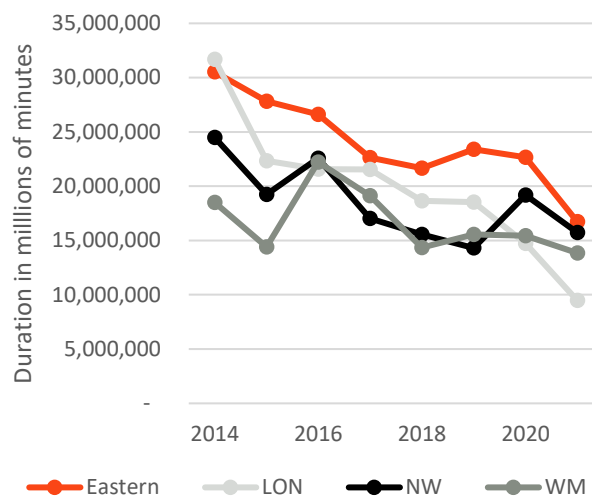
- Total performance vs target (Cumulative total to year 8)
- Revised Targets set in 2018 (cumulative 8 year total)

The graphs below show the trends for volumes and durations for planned interruptions across the price control period and illustrates the performance improvements we have made since becoming Cadent

**Trend for volumes of planned interruptions**



**Trend for durations of planned interruptions**



### Unplanned interruptions

The measure for unplanned interruptions relates to the number and duration of unexpected interruptions experienced by our customers, whether this is the supply to a Multiple Occupancy Building (MOB) or to other homes, offices and businesses (non MOBs). In the following section we outline our overall unplanned interruptions performance, the improvements we have made for our customers living in MOBs and provided an update on the major incident we experienced at the start of 2021.

**In general unplanned interruptions disrupts <0.5% of our customers (on average that's once in 200 years)**

### Total unplanned interruptions (including Multi Occupancy Buildings (MOBs) but excluding major incidents)

Our focus to drive down the numbers of unplanned interruptions and the length of time our customers are without gas in these situations has continued this year. We are pleased that the plans we put in place to improve customer service have resulted in significantly less customers being disrupted than were forecasted in the RIIO-GD1 loss of supply targets.

**We understand that any interruption to supply is inconvenient for customers, however, the number and durations of interruptions in 2020/21 were at their lowest levels since the start of the price control period (c. 29,000 interruptions with average durations less than 1 day)**

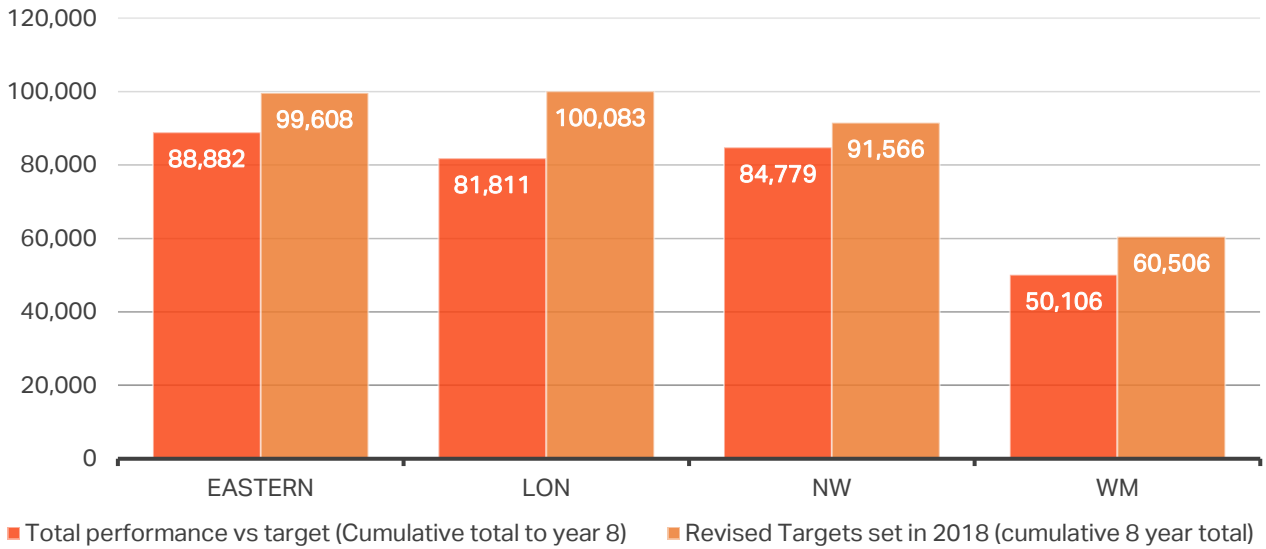
**Total durations have been reduced by c.26% across all of our networks since 2019/20. saving 14 million minutes.**

The graph below shows our final position for interruptions at the end of the RIIO-GD1 period. In all networks we are well below the 8 year target for the number of unplanned interruptions. 3 out of 4 of our networks are below their total durations targets and in these networks our customers had their gas supplies restored within 12 or 13 hours. London network contains the largest population of MOBs of all our networks and due to the complexity of these buildings repairs can unfortunately take much longer to complete, which has influenced the total durations recorded for this network. We are disappointed that customers in our London experienced much longer delays, but our renewed focus as well as the separate commitments we made have meant that the step change in our performance has continued. Total durations in this network have fallen from 8 days in 2018/19 to 2.5 days in

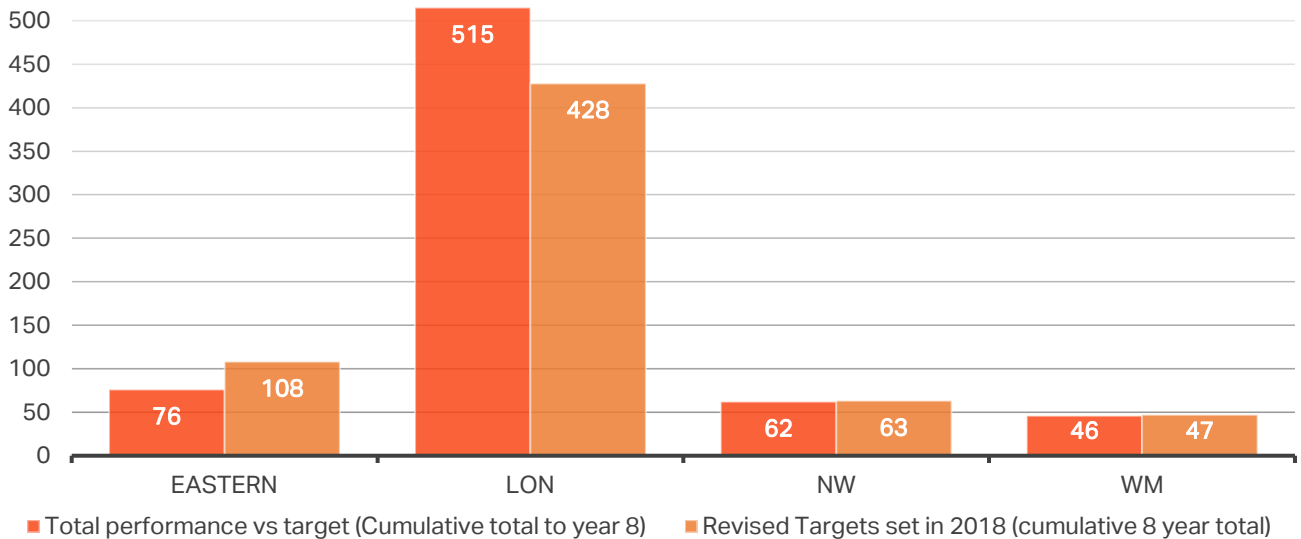


2020/21 (c. 57% reduction) demonstrating that we are making a positive difference to these customers and communities.

### Total Unplanned Interruptions Volumes

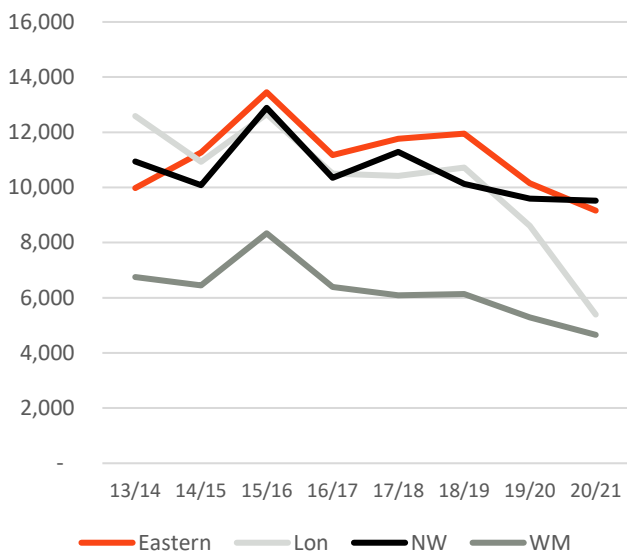


### Total Unplanned Interruptions Durations

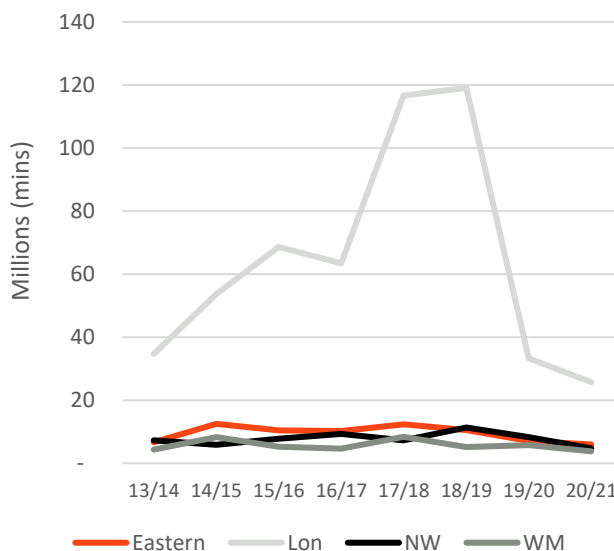


The trend graphs below illustrate our performance improvement across the 8 year period and the marked improvement we have made particularly in the last two years as we started to implement plans that will shape and improve the service we provide to our customers well into RIIO-GD2 and beyond. *(Please note that for London network the durations profile is influenced by the inclusion of MOB's which is explained later)*

### Unplanned interruptions volumes



### Unplanned interruptions Durations



### Unplanned Interruptions – MOBs

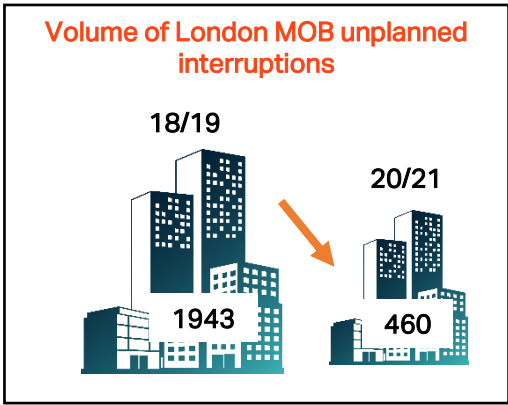
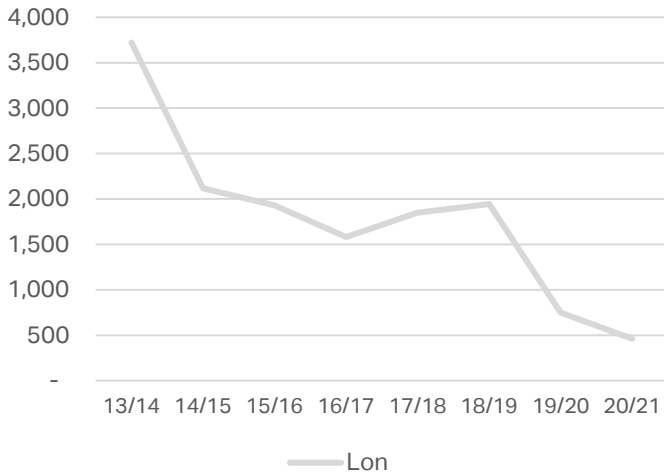
Through the use of innovation, sharing best practice and improved performance monitoring in the last year our Number of MOB interruptions reduced by c.40% and durations by 47% (a saving of c. 17 million minutes).

Average durations across all networks is c.13 days.

Most of our interruptions occur in single occupancy properties and restoring supply follows a consistent and controllable process. However, restoration of supply following interruptions which occur in MOB can last much longer due to engineering complexities. We also face challenges relating to access to individual properties within a MOB and permission from building owners and local authorities in order to commence works. To improve this situation we have created a national MOBs asset management and engagement team who are accountable for repeatedly attending properties in order to obtain access, liaising with stakeholders and engaging with local authorities, building owners and tenant management organisations to assist where access remains a problem. This coupled with the increased use of innovative techniques where we don't need to interrupt supply is having a positive impact on performance.

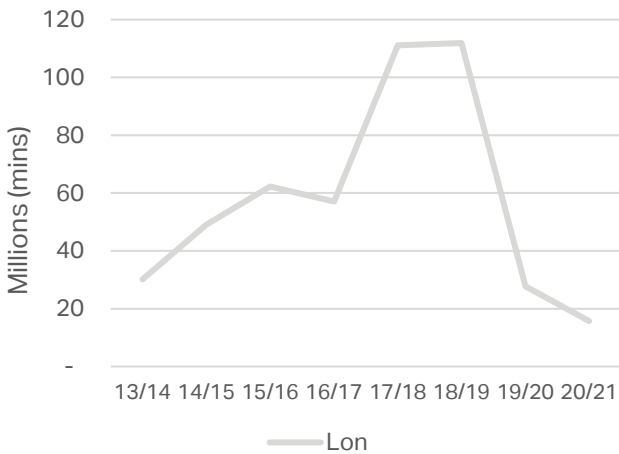
The following graphs illustrate how our performance has improved particularly over the last few years across all networks but most significantly in London. This network has many more MOBs and high-rise assets than any other UK distribution network. We acknowledge that our performance in the middle of RIIO-GD1 was not where we wanted it to be and was failing the targets set by Ofgem, however, we set out a comprehensive and multi-faceted MOB customer improvement plan which we have delivered and which has transformed the experience for these customers.

### MOBs Unplanned Interruptions Volumes

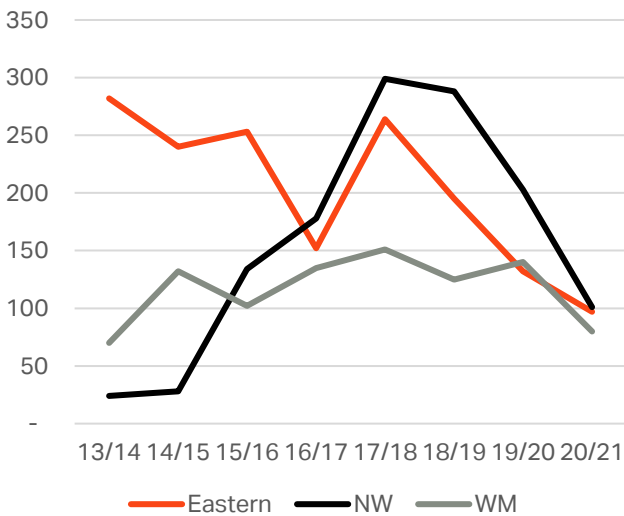


London durations have finished the period behind the original RIIO-GD1 target due to previous performance, but they had their own median performance target as part of their MOBs improvement plan and through these actions their MOBs interruptions reduced from an overall median of 20.9 days per interruption in 2018/19 to 13 days at year end 2020/21. Their best performance to date was seen in the first quarter of 2020/21 where they achieved an overall median of 6 days.

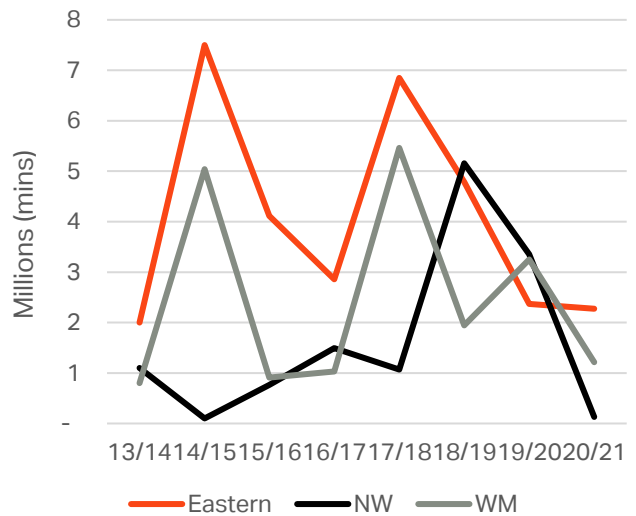
### MOBs Unplanned Interruptions Durations



### MOBs Unplanned Interruptions Volumes



### MOBs Unplanned Interruptions Durations



## Energy exchange programme

Our energy exchange programme provides financial support to authorities and building owners who proactively contact us requesting that their gas supply be removed from their high rise building where the supply is cooking load only. To support the programme we have multi-occupancy managers in place who are focused on communicating effectively with customers, building owners and local authorities to deliver a successful outcome for customers. In 2020/21 this work has been severely impacted by COVID-19, we have agreements in place with stakeholders and customers across our networks to remove gas in over 22 buildings but the physical work has been deferred to 2021/22.

## Unplanned Interruptions (2020/21) – major incidents



In a year of weather extremes from an unusually warm spring to the arrival of Storm Bella and Storm Christoph in the winter period, we experienced only one major incident in our Eastern network at Hoylandswaine near Barnsley. This was caused after 5,500 litres of water from a burst water main entered the main gas pipeline into the village.

Approximately 450 properties were interrupted.

40 engineers supported restoration of supplies and within 2 days only 6 properties remained where customers were not at home and our efforts were highly praised by those affected.

During this time we set up a control/customer centre at Hoylandswaine Village Hall to support our customers and answer any questions. We prioritised those customers in vulnerable situations on the Priority Services Register and others identified to us who might need an extra helping hand. We carried out welfare checks, offered hot plates and fan heaters to all and worked with volunteers from the local Red Cross to support the local community.

## Network capacity and network reliability

We continue to achieve our commitment of planning for a **one in twenty winter** in all our networks, which means we keep the gas flowing, 365 days a year, whatever the weather.

Our network performance is underpinned by a focus on the safety and wellbeing of customers, colleagues, contractors and members of the public and we are proud to provide overall **network reliability of 99.998%** which delivers a service that our customers can rely on and demonstrates our commitment to improve experiences for all our customers.

In the following section we explain our performance in relation to the secondary deliverables that we are required to report to provide a better understanding of our performance against the reliability primary outputs.

### Telemetered faults

Telemetered faults provide a measure of effectiveness of Cadent's classification and response to the impact of failures on our networks. Across the period we have refined our processes to improve response times and as a result in most networks our resolution time is within 24hours

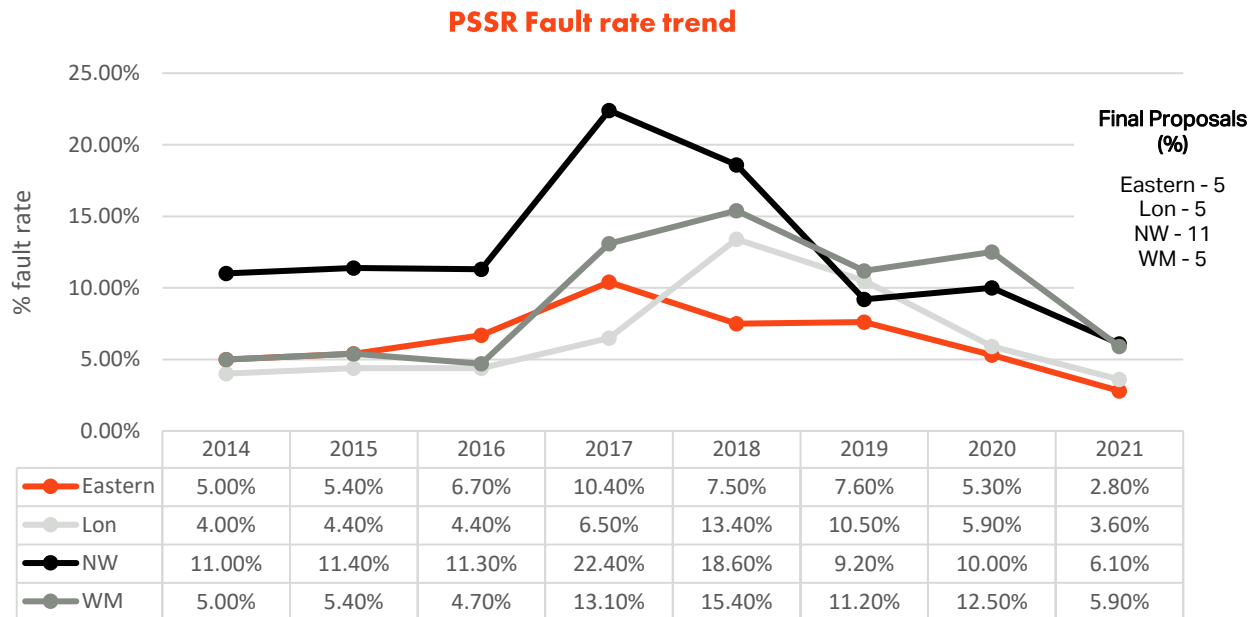
### PSSR faults

The methodology for the assessment and reporting of PSSR faults is aligned to the requirements of the HSE for compliance with the Pressure Systems Safety Regulations.

In 2016 we adopted a revised approach to the classification of faults which applies a more rigorous assessment than the previous compliant methodology. The change in reporting methodology caused an upturn in fault rate and whilst we remained compliant we have used the opportunity to drive real safety improvements in our

networks and are delivering performance against a much higher fault rate than was set out in the original Final Proposals.

Building upon the improvements we implemented last year (that included more focussed analysis of fault trends and continuous close management of operating strategies and assessment of operating pressures) we are pleased that our performance has continued to improve. As illustrated below in 2020/21 3 out of 4 networks are significantly below the original final proposal targets that were set on the old basis of measurement. West Midlands are slightly above their original target but nevertheless have made significant progress this year.



### Offtake meter errors

In 2020/21 we transported **c.268 GWh of energy** to homes and businesses across our networks and **1,840 TWh across the RIIO-GD1 period**.

Across the period our **total offtake metering errors** (as a proportion of our throughput) have been **less than the 0.1%** set in the RIIO-GD1 Final Proposals.

### Decommissioning of gas holders

At the beginning of the RIIO-GD1 period there were **214 non-operational low pressure gas holders** across our gas networks. We committed to decommission and remove 102 of them by the end of 2020/21. We have made good progress and are ahead of schedule and there are now only **38 remaining to complete in the RIIO2 -GD2 period**.

### Network Output Measures (NOMs – Asset health, criticality & risk metrics)

The Network Output Measures are an indication of the overall health of our assets across a number of key performance measures and are related to achieving a target level of risk mitigation. On an annual basis we report progress on this risk mitigation both **“with”** and **“without”** interventions with the difference referred to as the risk delta.

Our investments are complex and encompass works of varying magnitudes from replacing assets on our high-pressure Offtake sites to renewing a service pipe, but the Network Output Measures (NOMs) help us to express the benefits of our investments to customers and Ofgem in a concise way. The NOMs have encouraged us to be flexible in our approach to network investments, responding to the latest available data and information, and have enabled us to quickly assess the benefits of different interventions to ensure we deliver on our promises to customers.

Across the RIIO-GD1 period our approach to managing our network assets has been to focus on ensuring we maximise benefits to our customers and stakeholders in the short, medium and long term whilst ensuring we meet our statutory and legislative obligations. Despite the impact of the COVID-19 pandemic on our investment programme in all our networks we have delivered the Network Output Measure targets. In London we have delivered a greater monetised risk benefit due to both carrying out more interventions on Steel Mains, Services, Pre-heat when compared to our original business plan as well as optimising interventions on our other

assets. Using the valuation methodology set out in our NOMs close out report we estimate the value of these customer benefits to be in the region of £56.12m.

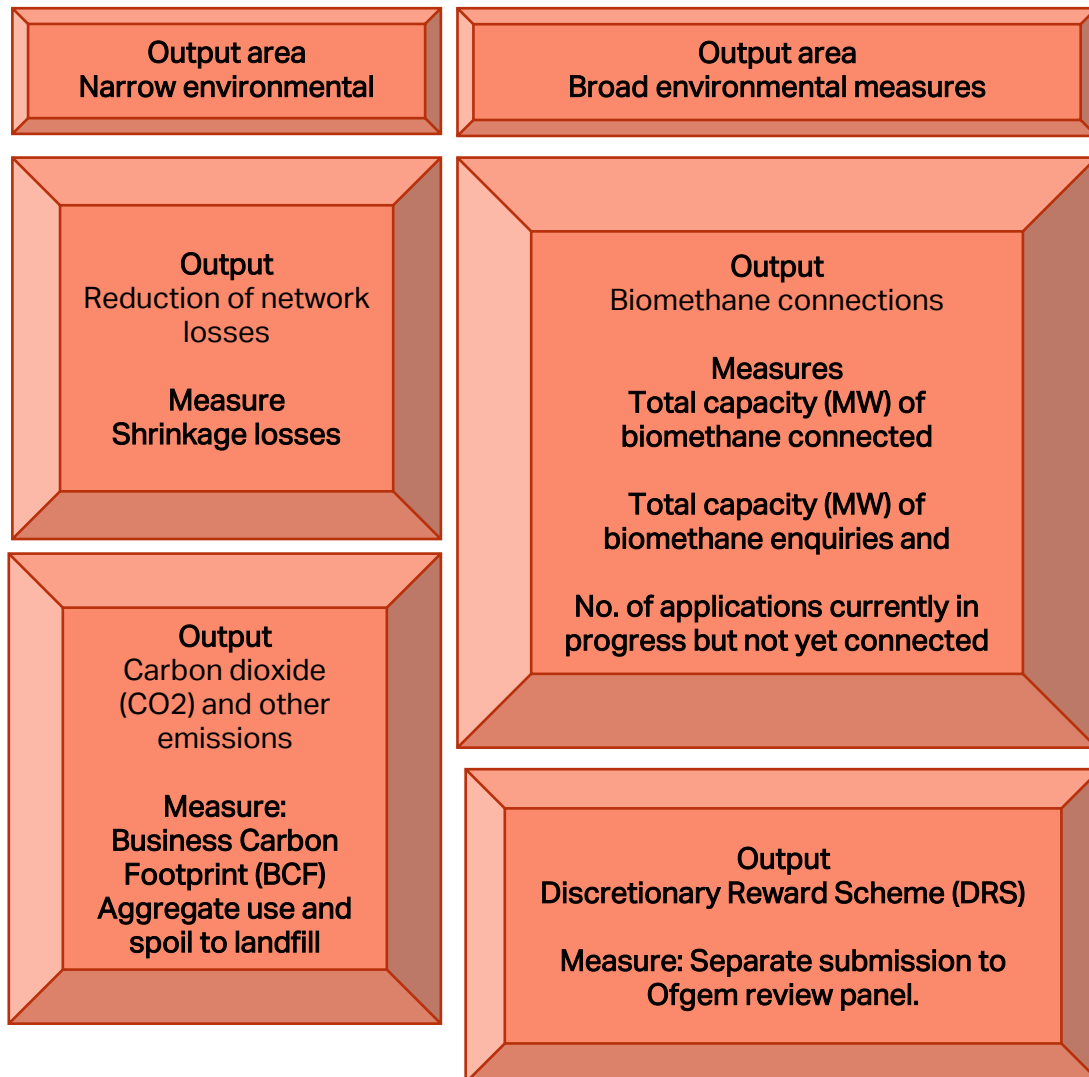
Details of our performance are outlined in our separate Network Output Measures close out report.

## 4.3 Environmental

Under the RIIO framework we are measured against two environmental objectives;

- **Narrow environmental measures** – to demonstrate how we have minimised the environmental impact of our own activities.
- **Broad environmental measure** – to highlight our contribution to the wider environmental objectives, eg by facilitating low-carbon flows on the network and promoting energy efficiency

In this section we set out how we have performed against the key outputs for each of the following measures



# Narrow environmental measures

## Reduction in network losses

### Shrinkage losses

Shrinkage is gas that leaves our network without passing through a meter. We recognise the impact that this will have from an environmental perspective and are acutely aware that the costs of buying the gas to replace that lost contributes to customers' bills and hence we are continually driving performance not only to reduce our environmental impact but to deliver savings for our customers.

While not physically measured, it is modelled and estimated using an Ofgem approved methodology.

Shrinkage includes gas that

- leaks or is vented from our system (**leakage**),
- is used for our operational purposes, for example, preheating gas prior to pressure reduction (**own use gas**) and
- gas that is stolen via unauthorised connections of the meter (**theft of gas**).

Through the contributions from our mains replacement programme; system pressure management and deployment of gas conditioning we are pleased to report that we have outperformed the shrinkage volume target set at the start of the RIIO-GD1 and that the actions we have taken are having a positive impact on our customers and the environment.

2020/21 our shrinkage volume **reduced by 51.5 GWh (4.4%)** across all networks.

*(Equivalent to the gas usage of c. 4,100 domestic homes (assuming typical annual consumption is 12,500 kWh)).*

Since the start of the RIIO-GD1 period our shrinkage volumes have reduced overall by **390GWh (26%)**

*(Equivalent to the gas consumption of over 31,000 homes)*

The largest element of our overall shrinkage losses relates to leakage from our network assets, particularly older metallic mains. Leakage from our assets is impacted by factors including the average system pressures we need to operate our networks at to deliver a safe and reliable supply of gas to our customers' properties and the level of mono-ethylene-glycol (MEG) saturation we can achieve in our networks to reduce leaks from lead and yarn joints. Leakage can also be caused by third party interference damages on our network.

Day to day temperatures can influence operating pressures in our network. As it gets colder the pressures must increase to ensure that all our customers get a reliable supply of gas to their homes and businesses. We have kept a tight control on our pressures throughout and introduced bespoke operating strategies for our network to optimise pressures.

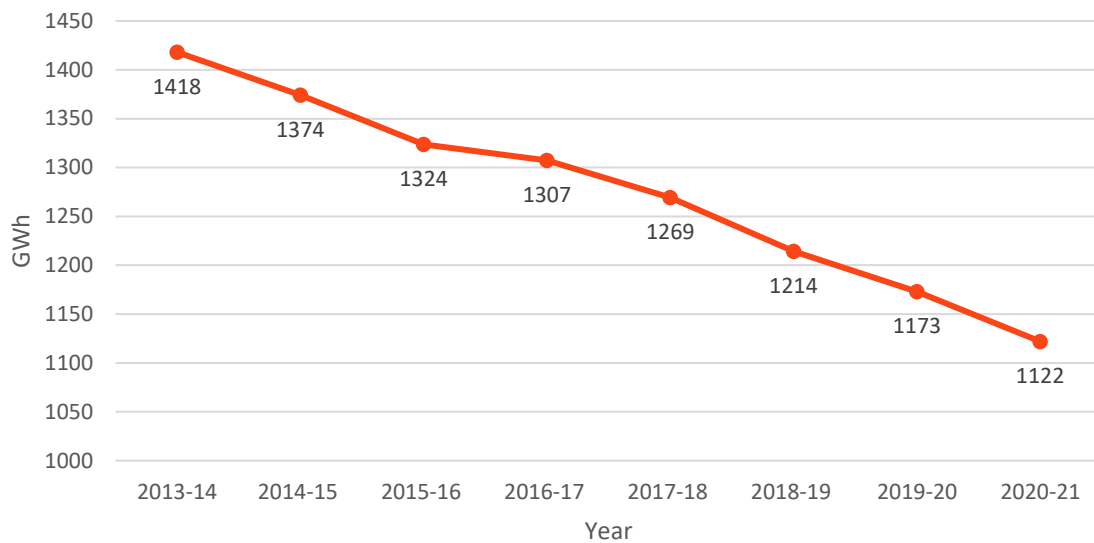
Within each of our networks we still have a significant amount of low pressure iron mains that have lead and yarn joints. These joints are treated using mono-ethylene-glycol (MEG) which reduces the rate at which gas leaks from them (the spread of MEG in the pipes is referred to as the "zone of influence"). Whilst a proportion of this type of pipe is replaced annually with polyethylene pipe through the mains replacement programme, we remain committed to the ongoing treatment of lead and yarn joints as this is making a positive impact on reducing gas leakage and the safety of the public.

The table and graph show our shrinkage performance in 2020/21 and across the price control period and we believe we are the best performing networks in this regard.

Network	Opening	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Variance to opening
Eastern	517	478	465	449	450	440	422	412	394	-24%
London	272	257	250	244	239	228	215	207	200	-27%
NW	394	370	356	341	331	322	307	295	277	-30%
WM	328	313	303	290	287	280	271	259	251	-23%
<b>Total</b>	<b>1,511</b>	<b>1,418</b>	<b>1,374</b>	<b>1,324</b>	<b>1,307</b>	<b>1,269</b>	<b>1,214</b>	<b>1,173</b>	<b>1,121</b>	
<b>Shrinkage Baselines (Final proposals)</b>		1,540	1,498	1,460	1,422	1,386	1,348	1,313	1,277	
<b>% Difference to Final Proposals</b>		<b>-8.0%</b>	<b>-8.3%</b>	<b>-9.3%</b>	<b>-8.1%</b>	<b>-8.4%</b>	<b>-9.9%</b>	<b>-10.7%</b>	<b>-12.0%</b>	



## Cadent shrinkage total



## Carbon dioxide (CO2) and other emissions

### Business Carbon Footprint (BCF)

Whilst the majority of our greenhouse gas emissions are from shrinkage, other significant sources are energy consumption in offices and other business premises, along with fleet vehicles, primarily vans and company cars. In our larger office buildings, we have systems that help us control and monitor the efficient use of electricity and water.

#### RIIO-GD1 eight year performance

Overall, the BCF target was to reduce our aggregate Scope 1 and 2 emissions by 20% during RIIO-GD1 from a 2012/13 level of 48,691 tonnes CO<sub>2</sub>e (excluding Shrinkage).

For Scope 1 emissions (comprises all emissions from commercial vehicles and business mileage from employees) the overall RIIO-GD1 8-year target was to reduce emissions in scope by 4%. Over the 8-year RIIO-GD1 period scope 1 emissions have been reduced by 9.71%.

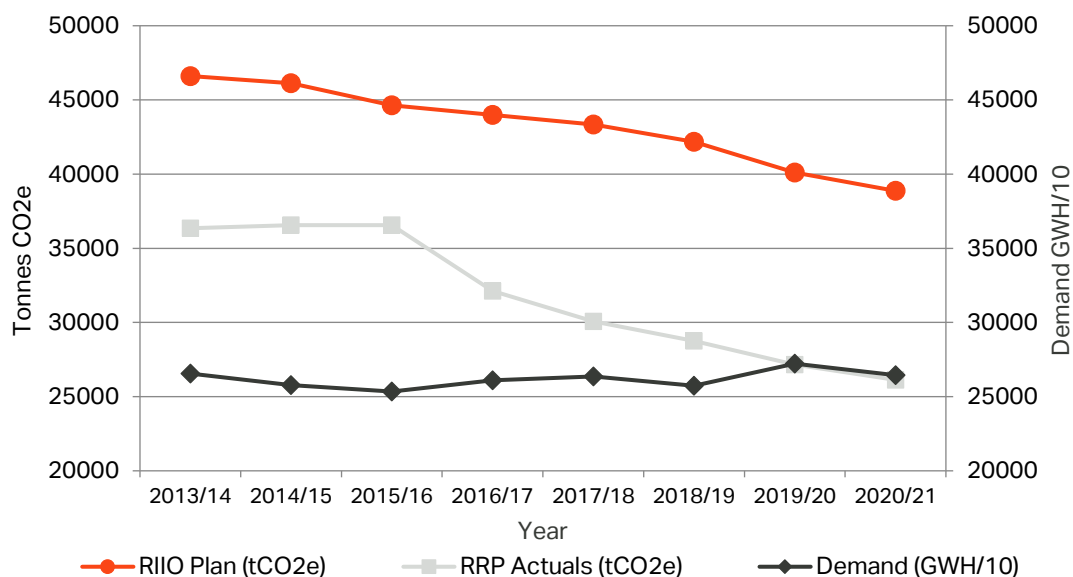
For Scope 2 emissions (electricity consumption at all operational and non-operational sites) the overall RIIO-GD1 8-year target was to reduce emissions in scope by 27%. Over the 8-year RIIO-GD1 period scope 2 emissions have been reduced by 43%.



In 2020/21 Scope 1 performance (all emissions from commercial vehicles and business mileage from employees) we reported 19,684 tCO<sub>2</sub>e, which is more than 6% lower than the year 8 RIIO-GD1 target of 20,873 tCO<sub>2</sub>e.

Scope 2 performance in 2020/21 (electricity consumption at all operational and non-operational sites) we reported 6,446 tCO<sub>2</sub>e, this is 64% lower than the year 8 RIIO-GD1 target of 17,996 tCO<sub>2</sub>e.

As shown in the graph, since the start of the RIIO-GD1 period we have continued to make real progress in **reducing our BCF** against continuing demand on our networks and we are pleased that we have finished the period ahead of the targets set for Scope 1 and 2



### Minimising our impact – Waste to landfill

During the past three years we have significantly reduced our waste to landfill from 14% in 2018/19 to less than 4% in 2020/21. This has been achieved by embedding good practices, changing our policies and engaging with and educating our colleagues. Initiatives such as using low dig and no-dig techniques, inserting new plastic pipe into old metallic services, and using vacuum excavation, which we have shared in previous submissions, have also contributed to this success. This is a huge improvement from 60% in 2012/13, and we are working hard to achieve zero waste to landfill in the next financial year.

To further reduce waste and embed a culture of sustainability amongst our partners and supply chain, we have incentivised our Gas Distribution Strategic Partners to recover, reuse or recycle 90% of the spoil they generate from excavations and street works, and use less than 30% first use aggregate for backfilling. To date we have outperformed these targets as shown in the tables below.

#### Virgin Aggregate - % of total aggregate used for backfill

Network	13/14 Actuals	14/15 Actuals	15/16 Actuals	16/17 Actuals	17/18 Actuals	18/19 Actuals	19/20 Actuals	20/21 Actuals	Final Proposals
Eastern	40.80%	29.16%	13.96%	13.58%	24.69%	16.41%	15.47%	18.19%	30%
Lon	0.30%	2.41%	0.09%	0.64%	1.71%	2.94%	1.81%	4.50%	30%
NW	27.50%	18.90%	13.11%	8.00%	23.04%	25.58%	25.83%	21.24%	30%
WM	3.10%	12.60%	1.64%	3.26%	1.01%	2.32%	8.52%	14.36%	30%

#### Spoil to landfill - % of spoil sent to landfill

Network	13/14 Actuals	14/15 Actuals	15/16 Actuals	16/17 Actuals	17/18 Actuals	18/19 Actuals	19/20 Actuals	20/21 Actuals	Final Proposals
Eastern	6.70%	7.27%	5.79%	7.43%	6.73%	6.51%	4.14%	3.86%	10%
Lon	3.60%	0.74%	0.11%	6.03%	1.96%	1.51%	1.93%	2.86%	10%
NW	3.30%	2.19%	1.25%	1.75%	0.01%	0.40%	1.92%	2.20%	10%
WM	1.90%	0.34%	0.00%	0.15%	0.00%	0.13%	0.30%	2.56%	10%

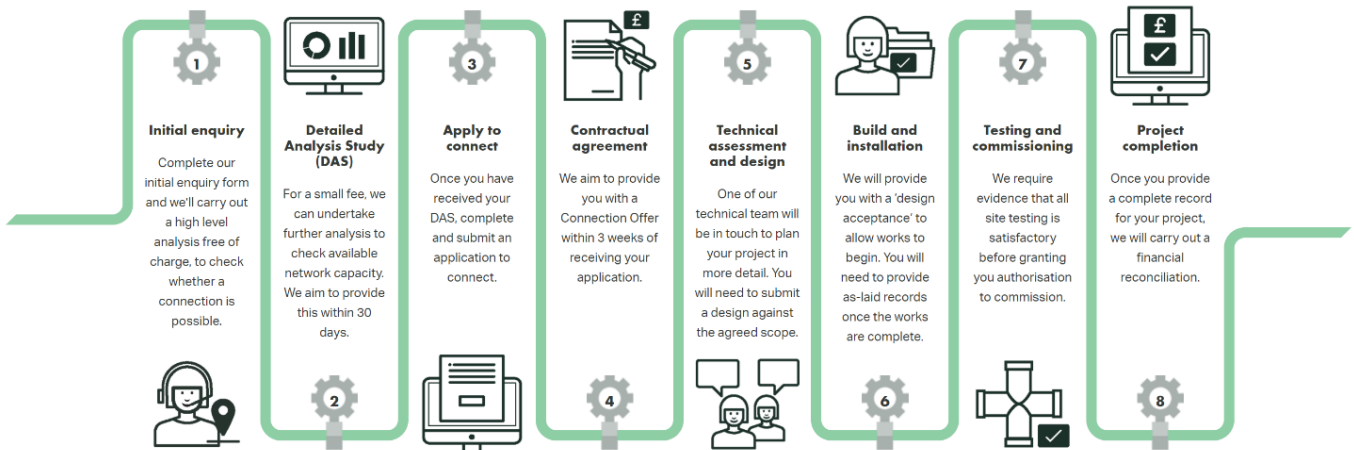
# Broad environmental measures

## Biomethane connections

Over the course of the RIIO-GD1 period we have continued to support the growth of the UK biomethane sector by turning food, farm and other waste, otherwise destined for landfill, into gas to fuel homes and transport.

We connected our first biomethane plant in 2012 and now have **36 biomethane producing plants** in our network. At full capacity these sites can supply enough gas to heat over 220,000 homes.

We've developed our processes so that customers can connect in eight steps which are outlined in our improved updated website.



We've also adapted to our customers needs by offering connections with variable flow rates where plants may be in capacity restricted areas and facilitating their ability to carry out the majority of the construction work themselves. A flexible approach that has been welcomed by our customers.

### These are the sites we've connected



This shows how much we've connected and the type of feedstock used

### Minimum & maximum injection rates of connected biomethane sites (SCMH)

Network	Previous years		2020/21		Total		Pressure tier split of connected biomethane sites Pressure Tier	Previous Years	20/21	Total
	min	max	min	max	min	max				
Eastern	11790	17010	0	0	11790	17010	Below 7 barg	23	1	24
NW	1523	2043	0	0	1523	2043	Above 7 barg (Cadent lay)	1	0	1
WM	4650	6600	500	1200	5150	7800	Above 7 barg (Self lay)	11	0	11

### Feedstock split of connected biomethane sites

Feedstock	Previous Years	2020/21	Total
Sewage	5	1	6
Food	10	0	10
Energy Breakcrop	17	0	17
Crop/Manure Mix	3	0	3

With the introduction of the new Green Gas Support Scheme, (the successor to RHI the Government financial subsidy), we have seen a marked increase in confidence in the biomethane sector with **93 enquiries** received during 2020/21 against 40 in 2019/20, and we have seen this upward trend replicated with requests for **biomethane connection studies which have more than doubled this year to 18.**

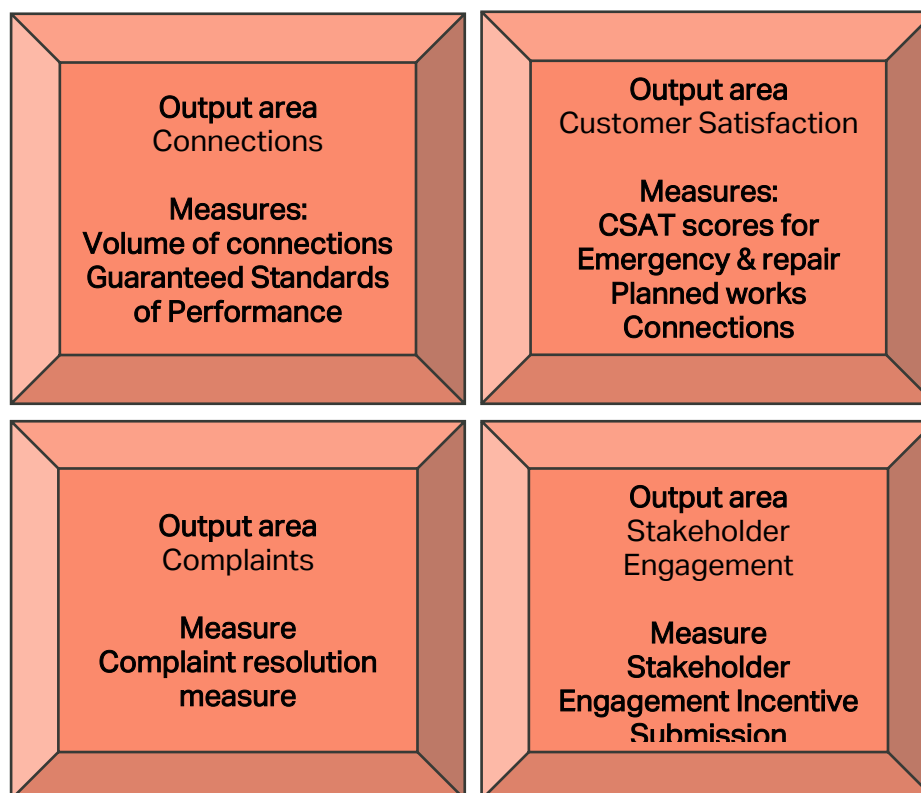
The Green Gas Support Scheme provides the long awaited certainty with a continued sustainable financial and environmental future for biomethane to gas grid. Even though we remain with Covid-19 in the background, we have seen an increase in the commitment from biomethane developers and operators for new connections over the coming years and also requests for the increase in existing plant capacity for those already injecting biomethane into our network.

We will continue to work collaboratively with the anaerobic digestion (AD) community and the gas distribution networks through the newly formed 'Customer Entry Forum', to drive standardisation for biomethane connections. This has seen the development and publication of technical guidance and the implementation of standardised methodologies providing consistency for developers and their supply chains when working across the gas distribution networks.

It is clear that biomethane will play a vital part in the transition to a sustainable future, endorsed by the Government and fully supported by the AD industry. We will build on the experience that we have gained to date connecting the 36 biomethane plants and continue to work collaboratively with the AD community to drive further innovation to maximise the full potential of green gas in our network.

## 4.4 Customer service

The service we provide to our customers is measured specifically by the following measures and in this section, we explain our performance in each of these areas across the RIIO-GD1 period.



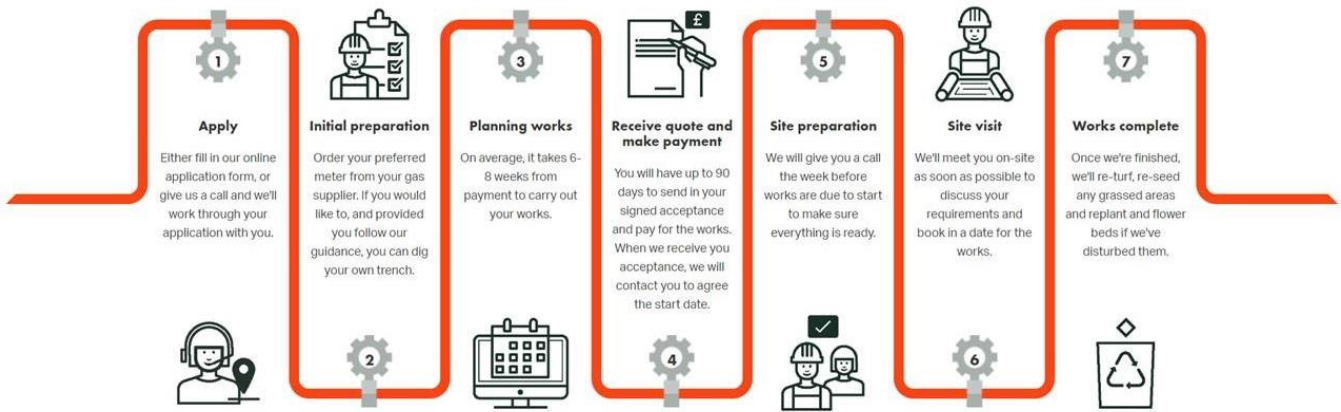
### Connections

Providing customers with gas connections services is a core aspect of our overall customer offering. Our services range from connecting customers to our gas network, altering an existing gas connection, moving a customer's gas meter, disconnecting a gas supply or diverting a gas pipe. These services are available to household customers and business customers across our four networks.

**In 2020/21 we delivered 15,362 connections, a 7% decrease compared to 2019/20.**

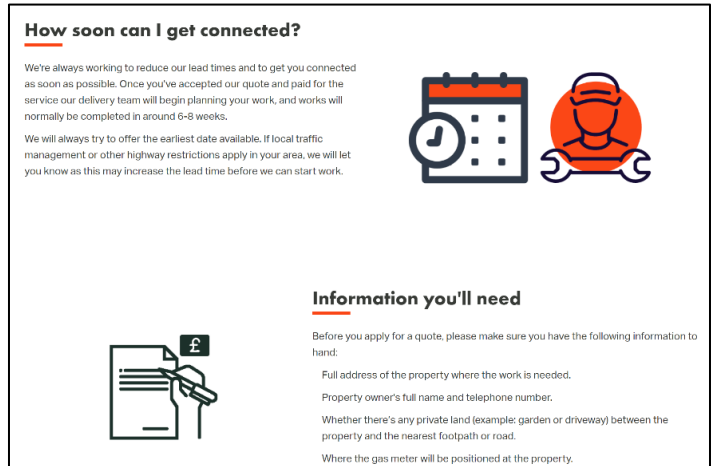
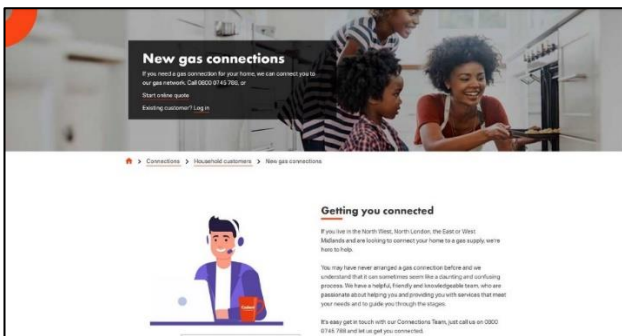
Arranging for a new connection, or work to facilitate a connection, may seem complicated or confusing to customers. Therefore, we transformed our services to reduce this complexity and make connections activities as simple and customer friendly as possible.

We undertook an organisational transformation by bringing all of our operational teams into the Cadent network structures to ensure local accountability and clearer understanding of specific network issues. Further to these organisational changes we have transformed the end to end journey focussing on making improvements to our service to ensure we are communicating more usefully, committing to delivery dates and keeping our promises.



### New look, easy to use pages

In September 2020, we launched our new connections pages covering specific connections services and transforming the layout and information to make them more user-friendly with engaging animated videos explaining how the connections process works to our customers. We have also made this accessible in BSL and subtitles in Urdu, Punjabi, Polish, Turkish, Somali, Bengali and Chinese (simplified).

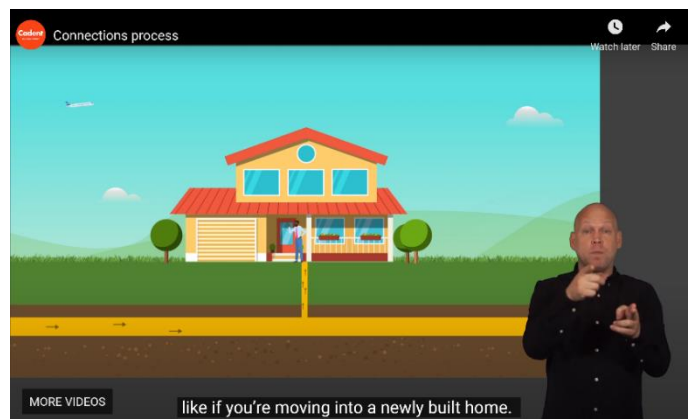


#### Check our standard domestic connections guide prices

The following charges apply for properties located within 23 metres of our network where the gas main is located in public land. If the boundary of your property is more than 23 metres away, or the gas main is located on private land, we will need to provide you with a bespoke quote. Please contact our Connections Team to discuss if you are unsure.

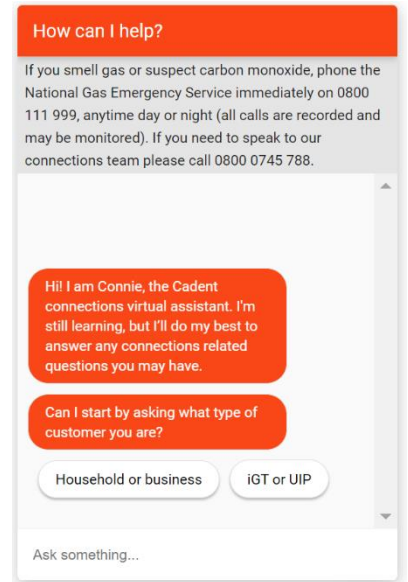
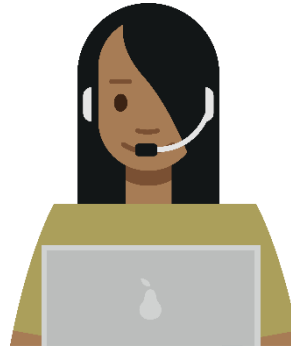
Length on private land	North West
>0m to 5m	From £560
>5m to 10m	£659
>10m to 15m	£754
>15m to 20m	£854
>20m to 30m	£1,121
>30m to 40m	£1,382

Current lead times from acceptance: Approx. 4 weeks



### Connie the connections chat bot

Through benchmarking with leading organisations in customer service and insights we garnered from our online community, we created a chat bot called Connie who provides real-time answers to customers' questions, removing the need to wait to speak to an advisor. By reviewing our previous enquiries, we were able to understand the most common queries and prepare appropriate responses in advance. Taking the learnings from our assessment via the Digital Accessibility Centre in May 2020, we ensured accessibility best practice standards were adhered to, making all our information accessible to users with disabilities.



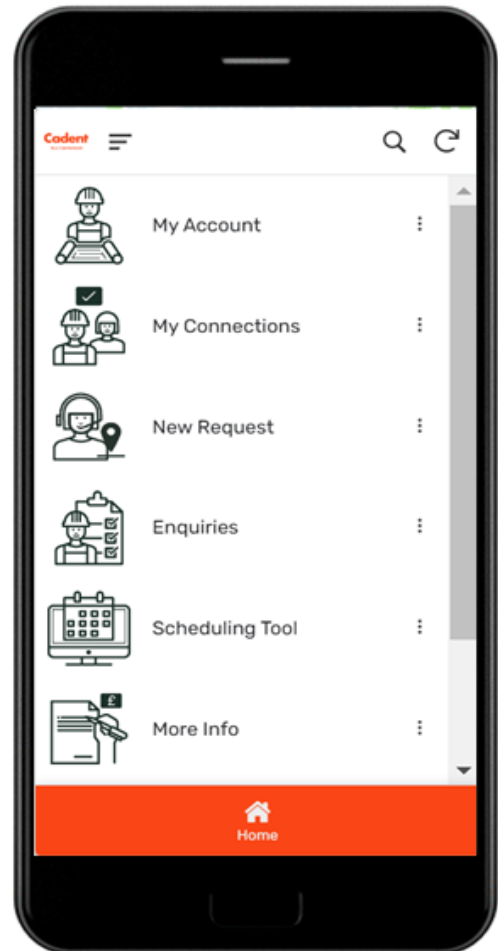
### Cadent Connections App

More recently, we have developed the Cadent Connections App to place the connections process in our customers' hands. The more frequent criticisms we obtain is that customers do not have clear visibility of the progress of their request journey, and it requires multiple surveyor visits to advance their application, which is inefficient and time-consuming. To combat this, using our citizens' development initiative, we have produced a Connections App to facilitate the customers' adventure.

The primary purpose of the connections app is to simplify and improve the customer experience. It achieves this goal by utilising simple, yet effective AppSheet features to smoothen the process. Some of the key functionalities include:

- applying for multiple different services, i.e. alteration, disconnection, new service etc., and being able to track its progress;
- real-time communication via instant enquiries & feedback capabilities and;
- an intuitive, one-click contact us function which provides an instant call out ability.

These features (and more) all work simultaneously to increase transparency and reduce touchpoints for the customer in their journey. Besides the primary benefits for the customers, the Connections App will also reduce call volume into the call centre, clearing up resources to focus on other objectives, and will begin to automate the process, which is a crucial step in our digitisation strategy.



## Connections Guaranteed Standards of Performance (GSOP)

Minimum standards for our connections delivery service is measured via Guaranteed Standards of Performance. Customers are entitled to a compensation payment if we fail to deliver against them and we are obliged to meet them at least 90% of the time. In 2020/21 we exceeded the 90% delivery target for each GSOP except GSOP 9&10 in our Eastern and West Midlands networks.

Activity	Performance 2020/21			
	Eastern	London	NW	WM
<b>Providing quotations</b>				
Provision of standard connection quotations - (<275 kWh per hour)	99.86%	99.81%	99.81%	99.96%
Provision of non-standard connection quotations - (<275kWh per hour)	98.03%	97.64%	98.41%	96.55%
Provision of non-standard connections quotations - (>275kWh per hour)	98.96%	97.63%	98.26%	99.15%
<b>Supporting customers</b>				
Response to land enquiries	99.37%	98.76%	98.19%	98.91%
<b>Connections work</b>				
Provision of a date for starting and finishing the work	92.99%	96.38%	95.81%	90.37%
Completing the work in the timescales agreed with the customer.	89.83%	92.16%	93.45%	86.35%

Reduced performance for GSOP 9&10 in Eastern and WM was due to the impact of the COVID-19 related lockdowns in the first quarter of the year. In order to adhere to Government guidelines we were required to re-prioritise workload and planned dates to ensure we were keeping our customers and colleagues safe. This had an adverse impact on performance. The table below shows our performance against this standard if the first quarter of 20/21 is removed

	Performance 2020/21 (if Q1 data removed)			
	EN	London	NW	WM
Completing the work in the timescales agreed with the customer	92.99%	96.38%	95.81%	90.37%

## Customer Service

In 2020/21 we have made significant improvements in customer service which has been reflected in increased Customer Satisfaction scores. Core to these improvements is the embedding of our customer strategy which aims to provide outstanding service levels to all our customers. Our strategy focuses on implementing a network orientated operating model with local accountability for customer outcomes, supported by greater levels of data insights and use of technology to improve accessibility to the services we offer to customers. This has shown us that more value can be created by empowering local teams with specific data-driven insights and giving them the responsibility to make improvements and provide a consistent service, instead of having centrally run 'one-size-fits-all' processes that do not necessarily leave customers with the positive experience that was intended.



## Customer Satisfaction (CSAT)

For the first time in the RIIO-GD1 period we have **exceeded** the regulatory targets for Customer Satisfaction (CSAT) in **ALL** 12 categories (8.8 in aggregate across all 3 processes).

Network	20/21	19/20	Movement from last year
Eastern	8.83	8.81	+0.02
London	8.70	8.59	+0.11
NW	9.00	8.75	+0.25
WM	8.72	8.54	+0.18

In providing this excellent service we recognised the impact that the COVID-19 pandemic has had on how we carry out works. We provide an essential service to customers and throughout the pandemic and the associated lockdowns we have continued to deliver these services, whilst ensuring our customers and colleagues are kept safe. We enhanced our communication, utilised multiple channels including radio and social media, to ensure our customers and colleagues were reassured and kept informed as we carried out essential emergency and mains replacement work.

The following sections detail our performance levels in 2020/21 for the three service lines we measure for customer satisfaction, showing the level of improvement made over RIIO-GD1.

### Emergency Response and Repair

Throughout the RIIO-GD1 period we have delivered excellent levels of customer service for the Emergency Response and Repair process and our CSAT scores have significantly exceeded the target set at the start of RIIO-GD1. Despite maximising on the incentive we have continued to improve our service and in 20/21 our CSAT scores improved in all four networks compared to 19/20 with the combined aggregate score increasing from 9.38 to 9.51. The key initiatives that have driven this improvement includes completion of backfill and reinstatement as soon as the repair has been completed and the commitment to be 'gone in a day'. We have also continued to reduce unplanned supply interruptions both in volume through better identification and targeting of planned works, and duration through improved processes with less hand-offs and innovative techniques to minimise the time off gas. Our engineers have also been assisted through targeted training and support plans.

The table below summarises the CSAT scores over GD-1 period:

ER&R	Target score	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Eastern	8.81	9.18	9.29	9.38	9.41	9.44	9.45	9.49	9.56
London		8.84	8.87	9.03	9.06	9.05	9.12	9.08	9.41
NW		9.21	9.20	9.38	9.38	9.38	9.35	9.49	9.55
WM		9.06	9.15	9.26	9.27	9.29	9.39	9.47	9.52

### Planned works

We have made significant improvements in our Planned Works CSAT performance over the course of RIIO-GD1. In 2020/21 all four of our networks exceed the regulatory target and improved compared to performance in 2019/20 with the combined aggregate score increasing from 8.24 to 8.42.

We identified that our end-to-end communication required revamping to ensure customers were given a clear and simple message as to why we were doing the work and what they could expect. We therefore, reviewed all our communications, from letters, leaflets, drop-cards, online/social media, and our website and developed a suite of simple and customer-friendly communications. We also developed a 'Customer Experience Playbook' that leverages the lessons learnt from the improvements we made last year in conjunction with our partner, Network Plus, which received excellent feedback from customers and stakeholders. The playbook displays the

customer journey end to end, with typical blockers and solutions highlighted in each step in the process. It details our expectations of how colleagues should provide an exceptional customer experience and guidance on how to deliver this high standard of service consistently. The approaches within the playbook were tested with over 2,000 customers and stakeholders to ensure our actions were in line with what customers expected.

Another area of focus based on our customer insights was the instability of our programme where our planned works would move much earlier than initially set out to customers or delayed to a later date. This caused confusion and dissatisfaction for customers as they were required to replan their lives around our works. We therefore focused on making improvements to our Construction services delivery model and invested in pre-construction scheme enablement to improve programme stability and minimise occurrences of changes in our planned timelines.

The table below summarises the CSAT scores over RIIO-GD1 period.

Planned Works	Target score	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Eastern	8.09	8.17	8.03	8.07	8.24	8.46	8.62	8.47	8.68
London		7.90	7.91	7.96	7.82	8.25	8.22	7.97	8.42
NW		7.68	7.89	7.97	7.64	8.11	8.26	8.41	8.45
WM		7.96	7.86	7.73	7.80	7.75	7.75	8.11	8.13

## Connections

As explained earlier, we have implemented a number of initiatives to improve the overall customer experience for our Connections customers. In 20/21, all four of our networks performed above the regulatory target. Performance in our North West network improved significantly with customers scoring us 9.01 on average which is an increase of +0.67 compared to last year, ranking 3<sup>rd</sup> compared to all 8 GDN networks. Our West Midlands network also improved compared to last year from 8.05 to 8.50. Whilst Eastern and London remain above the regulatory target we acknowledge that performance is lower this year in these networks and we are regularly monitoring the reasons why this is the case so that we can take appropriate actions to provide the service our customers deserve.

Building on the improvements we reported in 2019/20, we have continued our connections transformation using digital technologies to create an engaging online journey for domestic and business customers to enhance the customer experience when applying for a connection. Stakeholders had repeatedly told us that our application process needed improvement and we recognised that in a world of same-day delivery, chat bots and instant messaging, traditional phone and email routes were comparatively inconvenient for many connections customers. In response to this feedback, we worked with customers and stakeholders to co-create a new online customer journey to provide a truly intuitive application experience for the modern consumer.

The table below summarises the average CSAT scores over RIIO-GD1 period:

Connections	Target score	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Eastern	8.04	7.59	7.73	8.13	8.41	8.44	8.22	8.46	8.25
London		6.61	6.55	6.88	7.49	7.17	7.50	8.73	8.28
NW		8.03	8.30	8.67	8.44	8.69	8.69	8.34	9.01
WM		7.52	7.95	7.83	7.69	7.85	8.35	8.05	8.50

## Minimum returns (Connections only)

For connections we have a target for the minimum number of survey returns we need to representatively inform how our customers perceive the level of service we provide. We survey 100% of customers and in 20/21 we met our minimum target of 200 returns in all our networks:

Connections returns	Eastern	London	North West	West Midlands
No. of responses	1,131	320	516	474
<b>Min Return Target</b>	<b>200</b>			

## Complaints metric

In the last three years of RIIO-GD1 we have shown significant improvements in our complaints handling performance. This has been achieved through continued refinement of our processes and finding the optimum balance between central oversight and expertise with local performance drive and accountability. In 2020/21 we have driven even further improvements in performance compared to 2019/20 with a larger proportion of our complaints being resolved in D+1 in all networks. This is a substantial improvement when compared to the beginning of the price control period when we were only resolving circa 20% in D+1.

### D+1 resolution performance

Network	2018/19	2019/20	2020/21
Eastern	76.58%	73.92%	77.86%
London	73.10%	73.03%	77.84%
NW	74.97%	78.65%	83.77%
WM	66.76%	79.08%	83.27%

Our West Midlands team has been on a transformative journey to enhance our complaints handling process, through adopting a holistic and integrated approach under three key themes:

**Clear accountability:** We created a single point of contact for customer strategy, insights, setting standards, performance management and change. Daily calls are held to discuss complaints at risk of not being resolved within 24 hours (D+1).

**Data quality:** By setting high standards for customer performance and data quality, we were able to achieve consistency and improved KPI performance throughout our supply chain.

**People focus:** We held 'engagement focus days' to generate two-way discussion and feedback between operational teams, recognising people's contributions and reinforcing our ambitions. The team now resolves almost 9 in 10 complaints within D+1, including all on-site remediations. Within 12 months, the WM network went from eighth to second in the GDN league tables for complaints handling.

The table below shows how our complaint performance has improved across the RIIO-GD1 period to date. All networks continue to be well below the 11.57 RIIO-GD1 target.

Network	Target complaint metric	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Eastern	11.57	10.41	9.90	9.46	9.32	5.71	2.80	3.06	2.49
London		11.45	11.45	11.45	11.03	7.52	3.50	3.15	2.42
NW		10.30	10.08	10.08	9.39	7.79	3.20	2.35	1.98
WM		10.70	9.88	9.88	10.20	7.62	4.43	2.25	1.74

## Stakeholder engagement

Our engagement strategy is structured against the important principle of being centrally defined and regionally delivered, empowering our local delivery teams to engage with their stakeholders in tailored and valuable ways. It is fully aligned with other key strategies which each support our vision of *'setting standards all our customers love and others aspire to.'* This approach is essential to us providing better outcomes and is supported by robust governance and leadership.

Following on from the increased score for our 2019/20 Stakeholder Engagement Incentive (SEI) submission, our feedback mechanisms are now well established and allow us to share best practice and learnings across all our regions and with our strategic partners. This approach has been particularly important during the pandemic, where local needs have required tailored and flexible approaches to stakeholder engagement activities and priorities. We have assessed these requirements against our Value Assessment Framework set out below to ensure we can deliver the best outcomes across all our networks.

### Our approach to measuring value

Value Assessment Framework: when considering the value of a project, there are a number of questions, or value filters, that we employ to determine whether it will deliver real value for customers and stakeholders.

#### 1 Is there a quantifiable benefit to customers and wider society?

Where possible, we calculate the social return on investment (SROI) benefits and use this as a key differentiator when assessing and prioritising potential and ongoing projects. Our SROI model was developed with Sia Partners and uses Government Greenbook data along with clearly defined assumptions to apply financial benefits to society based on the initiatives we deliver.

1

#### 2 Do stakeholders consider the project to be of intrinsic value?

Where it is not possible to calculate the SROI, we use other cost benefit analyses and measures to determine wider value. We combine this data with direct feedback from stakeholders and customers, commissioning additional research if required. This qualitative assessment is essential in determining value, as many attributes are important to stakeholders, yet it can often be impossible to demonstrate a financial benefit.

2

#### 3 Does the project align with our strategy and stakeholders' priorities?

All projects are reviewed to ensure that they align with stakeholders' needs and our strategic objectives of making things easier, fairer and greener for the people we serve. To maximise the impact that our projects and initiatives deliver, we have to remain disciplined and only invest time and resources in projects that deliver value and tangible benefits to our communities.

3

### Project mobilisation and assessment

Following this analysis, we complete a change impact assessment and each project is given a rating. Our Allocation Group, chaired by our Director of Customer Strategy, considers the merit of each project using this Value Assessment Framework and manages any trade-offs. The highest rated projects are prioritised, and we use our stakeholder mapping tool to identify stakeholders who are impacted by or interested in the project.

2020/21 has been a year like no other, but amongst the challenges that the pandemic has brought us, we have continued to engage with customers and stakeholders to deliver some truly exceptional outcomes as outlined below.

### Leading the way to net zero

We are leading the way in ensuring that the UK's gas network plays its role in securing zero carbon energy which is reliable, flexible and convenient for customers to use.

This year it has been evident from our engagement with stakeholders, data and sentiment analysis tracking, that the general level of understanding about net zero and the role that gas in decarbonising heat and transport is low.

As such, our partners and stakeholders have emphasised the need for us to demonstrate the viability of hydrogen and address any misconceptions surrounding its usage. We have made this a priority over the last 12 months and have invested in a high-quality engagement programme that ensures all options for decarbonising heat and transport are considered.

### Innovating to make life easier and deliver a service our customers love

Throughout 2020/21 we've made it a priority to ensure that our workforce has access to key data and insights to enable them to deliver services that our customers love, keeping people safe, warm and independent in their homes.

We have continued to use Big Data and Artificial Intelligence (AI) to improve our working practices. As an example, we use AI across our emergency call handling and customer care services to develop our call agents' skills, deliver operational efficiencies and inform service improvements via our Customer Insights Team.

We have made sharing data a priority so that we embed best practice across all our partners. This was evident in our London Infrastructure Mapping project where we made the locations of our network assets visible to other utilities, opening up opportunities to work on collaborative roadworks projects and reduce the impact on customers by coordinating the timing of roadworks.

Our ongoing data transformation journey is also allowing us to make the best strategic decisions so we can keep the gas flowing safely and reliably in our networks.

### Supporting those that need it most

This year we have continued to promote equality, diversity and inclusion ensuring that our services are accessible as possible, and we have gone further to make things fairer for our colleagues and the people we serve.

Many customers living in vulnerable situations have been heavily impacted by the pandemic. Working closely with stakeholders and colleagues, we have prioritised the development of our planned safeguarding tools and services to deliver benefits quicker. We have also increased our learning provisions so that colleagues are equipped with the knowledge to identify safeguarding concerns and take action.

### Being a force for good

Having developed our new company purpose and values, it was important to test the alignment with our sustainability and Corporate Social Responsibility approaches. To ensure our approach was still fit for purpose, we conducted in-depth telephone interviews with a range of experts across the sector and sought the opinions from our Customer Forum via two-hour focus groups held in each of our regions.

We have developed a Force For Good strategy, which enables us to focus on delivering lasting social impacts across a wider range of areas, including colleagues, customers, communities, our supply chain and the environment.

### Collaborating for better outcomes

We continue to share ideas with the widest audience possible and, in turn, embrace thinking from others to instil best practice and deliver the best outcomes for our stakeholders and communities.

### External recognition

**"The hydrogen trial shows how the North West and Greater Manchester are at the forefront of the low-carbon economy and that, working with Cadent and the HyNet North West project, we can deliver deep decarbonisation of society."**

*Andy Burnham,  
Major of Greater Manchester*

**"The innovative One Number Referral Scheme can make a life-changing difference to people living in vulnerable situations and NEA is proud to be working with Cadent on such an impactful programme."**

*Nicky Swetnam,  
Project Development Manager, NEA*

**"By sharing long term plans, finding smarter ways of communicating and working collaboratively with Thames Water, Cadent did a fantastic job working with TfL to minimise disruption for customers during the festive period. These outputs feed into a wider TfL strategy to deliver a blueprint for 'supercharged' collaborations."**

*Andrew Sherry,  
Area Coordination Permitting  
Manager (East), TfL*

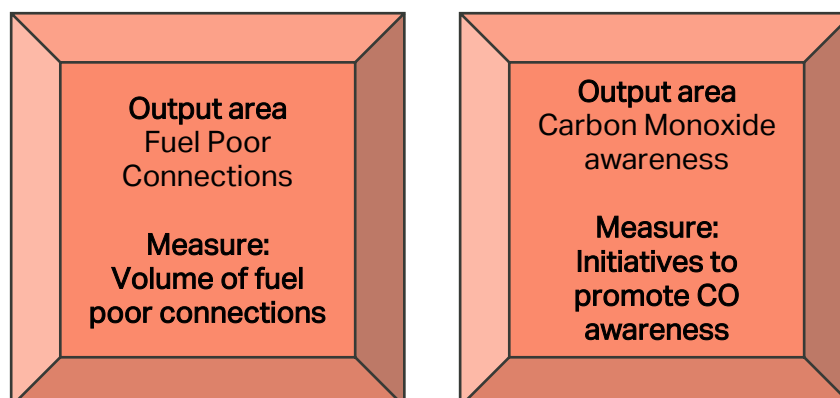
### Our RIIO-GD1 Stakeholder Engagement Incentive Submission scores

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
<b>Cadent</b>	7.15	5.9	6.9	6.9	6.0	6.33	6.93	TBC

Our level of stakeholder engagement has been recognised by Ofgem through the stakeholder engagement incentive scores achieved across the RIIO-GD1 period and we are currently awaiting the final score, which we anticipate will be available during August 2021.

## 4.5 Social outputs

We're committed to providing services for all and making a positive impact in our communities. In RIIO-GD1, our performance in relation to this has been measured by the following outputs.



### Fuel Poor connections

1.5 million customers living in our networks are currently experiencing fuel poverty. This is 11.7% above the national average. In the most severely affected area, 1 in 5 customers live in fuel poverty. We are committed to playing our part with wider industry and Government to tackle affordability and reduce fuel poverty. Our investment and continued support in the leadership of our strategic partner AWS has driven forward our ambition to deliver social value and play a key role in helping people to access affordable energy.

**In 2020/21 we have delivered a total of 4,291 fuel poor connections across our networks – almost double the amount we delivered in 19/20.** 2,478 of these were carried out as part of community schemes, 1,813 were one-off connections in fuel poor areas, and **we have made 34,674 connections since the start of the RIIO-GD1 period.**

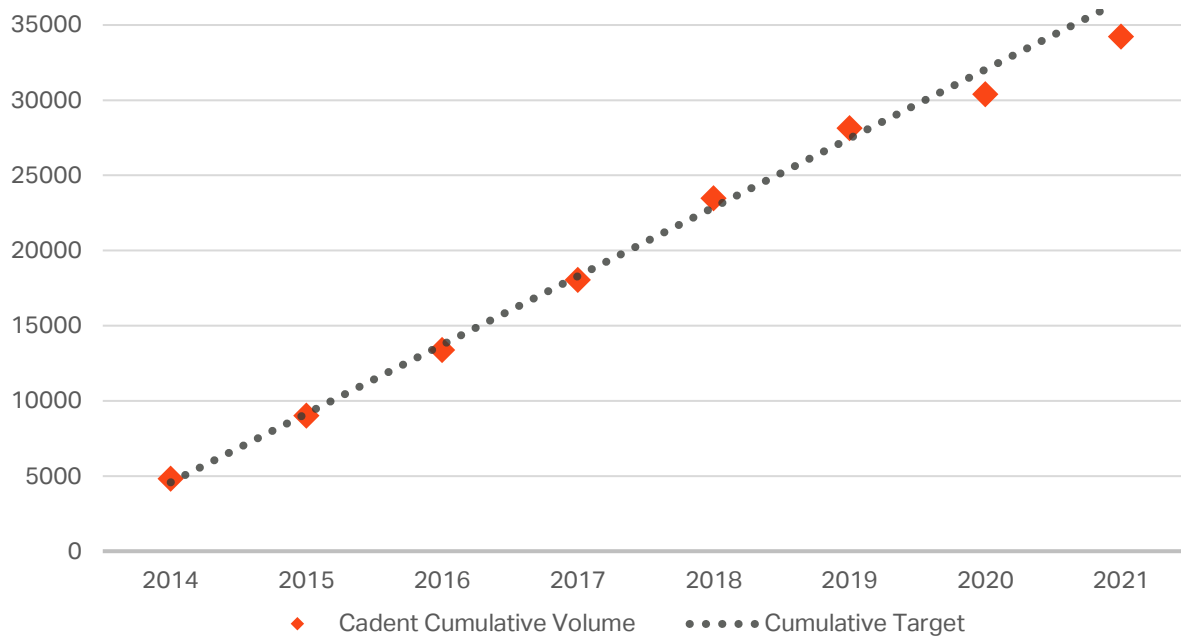
We have exceeded our regulatory 8-year target in our Eastern network by 710, however, due to the impact of the COVID-19 pandemic and Government lockdown restrictions, we were unable to deliver our planned volumes in London by c.2% and NW and WM by c.13%.

Network	8-year FPNES target	FPNES connections delivered over RIIO-GD1
Eastern	12,046	12,756
London	2,880	2,813
NW	13,330	11,623
WM	8,360	7,482
<b>Cadent</b>	<b>36,616</b>	<b>34,674</b>

The change to the qualifying criteria in 2018 by Ofgem presented a challenge in meeting our targets as it removed a large number of households that would otherwise have automatically qualified and which were built into the original targets. However, we implemented a series of initiatives and were confident that we would meet the revised targets. By the end of 19/20 we had delivered 80% of our target and identified a number of community schemes that would allow us to reach 90% of the target. We then made further revisions to our action plan which consisted of a diverse set of initiatives to facilitate delivery of the remaining 10%. However, due to the COVID-19 pandemic we were severely restricted in completing planned connections and engaging to identify additional connections, reducing our delivery and ability to meet our targets.

The following graph illustrates that our plans were on track to deliver our targets until the last 2 years when we were impacted by COVID-19:

## Cadent FPNES connections delivered



We are proud of what we have achieved given the difficult circumstances. The number of connections we have delivered in 20/21 represents our 3<sup>rd</sup> highest year across the 8 years of RIIO-GD1. Our action plan included a diverse set of initiatives to ensure that we delivered the full quota of fuel poor connections. These were embedded or in progress prior to the COVID-19 outbreak.

In the absence of funding for first time central heating systems required for a customer to qualify for the FPNES, we also utilised funds from our Cadent Foundation, allocating £1,000,000 payable over 4 instalments of £250k to assist 1000 homes.

The list below shows the initiatives in our plan and the impact they would have in delivering additional fuel poor connections.

Initiative / action	Community Schemes	One-off Connections	Potential Impact
Utilisation of the Warm Home Fund (c.£50m)	Yes	Yes	High
Advertising – local / national press, etc	Yes	Yes	Medium
Promotions in targeted areas – e.g. Ice cream van and 'bus campaign'	Yes	No	Medium
Eligibility follow ups against all completed connections by Cadent's connections team	No	Yes	Medium
Retrospective checks to all completed standard and non-standard connections	Yes	Yes	Medium
Targeted approach to Park Homes schemes	Yes	No	High
Utilisation of AWS's Predictor AI model	Yes	Yes	Low
Engaging Community Groups – promoting the scheme through 'trusted' partners	Yes	Yes	High
Over 230 contracts with LA. Councils and RSLs	Yes	Yes	High
Cadent Staff 'friends and family' referral scheme	No	Yes	Low
Analysis of forward looking MRP to identify properties without MPRNs in known areas of high fuel poverty	No	Yes	Low
Connected for Warmth programme, part funded via the Cadent Foundation	No	Yes	Medium
Visibility to Cadent management team of schemes failing economic test	Yes	No	Low
Off-grid trial	Yes	Yes	High



These initiatives proved very effective prior to the COVID pandemic, however due to Government guidance, lockdown measures and customer sentiment, the benefit of the initiatives has not fully materialised. A number of schemes have been postponed and our stakeholders have used the lockdown period to consider and pursue alternative options.

We are committed to delivering this shortfall in the next period in addition to the targets in RIIO-GD2.

## Carbon monoxide awareness

Carbon monoxide (CO) is the 'silent killer' that continues to put families at risk. Every year in England and Wales around 40 people die from CO poisoning, with 4,000 people seeking advice from their GP or Accident and Emergency unit, and 200 being hospitalised. Four out of the top five cities in the UK most at risk from CO poisoning are in our footprint. However, it is not just those who are considered to be the most vulnerable in society who are at risk of CO poisoning – only around 45% of homes have a working CO alarm installed.

We have continued to take a leading role in finding new ways to educate people about CO, as we believe that these deaths and incidents are avoidable if households are made aware of the dangers and provided with alarms. To enable us to target our CO awareness activities effectively, we have used a range of data points which have helped us to identify the areas in our regions at greatest risk, select the most appropriate solutions and deliver the best outcomes. We have been proactive in sharing our approaches with GDNs and other parties.

### Key achievements in 2020/21

- 97,138 CO alarms distributed
- 246,079 CO awareness surveys completed
- 673 Safety Seymour classroom sessions held
- 30,995 children reached
- 74,388 families educated

Our strategy focusses on educating the next generation about the dangers of CO. Extensive research has shown that children are up to twice as likely as adults to influence parents, grandparents and others into taking action relating to safety, health or green initiatives. As this is such an effective way of raising awareness of CO poisoning, we have invested significantly in developing educational programmes for children aged between 5 and 11 years old. Through these engagements, we are creating thousands of carbon monoxide ambassadors to help raise awareness and educate their family and friends.

### Safety Seymour, the bear on a non-stop mission

In 2015, we created Safety Seymour, a cuddly caped crusader on a mission to educate children specifically in Key Stage 1 on how they can protect themselves and their homes from CO through a classroom-based teaching session. During the past three years we have evolved Safety Seymour to make the teaching even more relevant and interactive. We have strived to lead by example and embed best practice across all networks, and we are delighted that all GDNs now use Safety Seymour. In April 2020 we led the creation of the collaborative Safety Seymour website. The innovative, fun and engaging website allows all GDNs to reach more schools, children and parents outside the classroom and helps create a consistent CO message across the UK. We were also the first company to host a Pipeline Industries Guild webinar educating children and their families on CO safety using a specially adapted Safety Seymour session.

### CO awareness on Amazon

We have partnered with Project SHOUT, who are also members of the All-Party Parliamentary Carbon Monoxide Group (APPCOG), to promote the Safety Seymour website and the importance of buying an audible CO alarm. With 90% of UK shoppers using Amazon, we were able to create a Safety Seymour advertising banner for amazon.co.uk on pages selling CO alarms with a direct link to our website, which saw a total of 748 visits and over 200 CO alarms purchased via this route.





## CO messaging during the pandemic

During the COVID-19 pandemic and the closure of schools across the country, we worked quickly to adapt the Safety Seymour programme to ensure that children could still access our important CO messaging outside the classroom and stay safe at home. This included:

- Creating online versions of the classroom-based lessons using Microsoft Teams and Zoom technology
- Replacing our Safety Seymour teddy with a 'pop out and make' version and encouraging children to upload pictures of their Safety Seymour with an appliance in their home via our website
- Providing each child with a Safety Seymour branded face mask to help them stay safe during the pandemic and further raise awareness of carbon monoxide across our communities.

## The CO Crew – a digital platform to reach more children



Following the success of Safety Seymour, we created The CO Crew in 2020 with a specialist education provider to target older children and increase the breadth of our CO awareness and gas safety messaging using digital platforms to ensure the content was inclusive and fit for purpose for Key Stage 2, we held facilitated workshops with 15 schools. Their feedback resulted in us making adaptations for pupils with special educational needs and developing our diverse CO Crew characters, Mimi and Loz. The CO Crew is delivered virtually for schools and is completely free and teacher-led. Learning is supported by our interactive CO Crew website, which is accessible, informative and fun with various activities ranging from dances and craft through to spotting the signs and symptoms of CO. Having an online solution for raising awareness with older children was particularly important during the lockdown periods and home-schooling.

## Safety centres

Across the country there are 15 purpose-built safety centres dedicated to helping children from ages 6 to 10 to stay safe in all aspects of day to day life. We have continued to develop

and grow our partnerships with safety centres in our regions and target high risk areas. Working originally with Hazard Alley in Milton Keynes (Eastern), we are now partnered with Safety Central (North West), Danger Point (North West) and Warning Zone (Eastern). By sponsoring the kitchen area within the home safety areas of the safety centres, we are ensuring that the appropriate information relating to the dangers of CO is clearly displayed and that the training provided by the safety centre volunteers is consistent and accurate. Information is displayed via posters as well as an interactive television screen. There is also a replica boiler onsite where children can see the signs of CO, and this interaction allows them to take the practical learning back to their families and friends. Each child also takes home a safety leaflet detailing the signs, symptoms and how to stay CO safe. We have shared our approach with the other GDNs through the working group and encouraged them to get involved with the safety centres in their networks.

## Partnerships

We have also developed strong relationships with key partners within the industry and beyond to maximise CO awareness. Fire and Rescue Services (FRS) Partnerships have played an integral role in helping us to extend the

reach of our services, gain access to additional expertise and specialisms and build trust with our customers, and we have continued to grow these relationships. We now work with all 24 Fire and Rescue Services in our networks and these key strategic partnerships allow us to access, through experts, the most vulnerable people living within our regions, extending our reach beyond what we could achieve alone.

During the COVID-19 lockdowns in 2020, we needed to find a way to inform customers about the dangers of CO in the safest way possible, including people classed as clinically extremely vulnerable. This was particularly pressing given that those shielding would be less likely to see family members and carers and were thus isolated and more at risk. Working in collaboration with Electricity North West, we distributed over 60,000 educational gas safety leaflets advising of the dangers of carbon monoxide and the different services available to gas and electricity customers living in vulnerable situations.



A photograph of a woman with curly hair, wearing a striped shirt, hugging a young girl with curly hair wearing a yellow shirt. They are sitting on a grey couch in a bright room with large windows in the background. The woman is smiling and looking towards the camera, while the child has her eyes closed and is also smiling.

# 5

# Innovation

Our innovation strategy is driven by our company purpose to Keeping people warm and protecting the planet. Our approach has been to foster a culture of innovation and learning to improve the service we offer to all our customers delivering benefits through reduced disruption, lower operational costs and innovations to support the energy systems transition to net zero.

2020/21 is the eighth year of Network Innovation Allowance (NIA) funding under RIIO-GD1. Over the eight years we have **invested over £55 million across 214 NIA projects**. This year we have spent **£7.8 million on 21 projects**.

Our focus for this year has been on the continuation of delivering projects within our RIIO-GD1 portfolio which can be delivered into our business to improve the way we work and deliver benefits for our customers. This includes projects in our future of gas portfolio, where we have focused on a programme of work to help establish the safety and feasibility (technical) case for hydrogen and the path to net zero. We have also made strong progress on a variety of projects such as mains replacement and multiple occupancy buildings processes to improve the quality of service customers receive. This final year of RIIO-GD1 has felt the impact of COVID-19 and as a result several of our RIIO-GD1 projects have had to be pushed out into the first year of RIIO-GD2. To allow for this impact there is a carryover

allowance for RIIO-GD1 projects, which will provide for an extra 12 months delivery time, for projects that have been impacted.

We have also made use of the Network Innovation Competition (NIC), which is an annual competition that funds selected flagship innovative projects that deliver low-carbon and environmental benefits to customers. We have delivered three NIC funded projects over the 2020/21 period; Hydeploy 1, Hydeploy 2 and Future Billing methodology.

### Leading the way to net zero

We are leading the way in ensuring that the UK's gas network plays its role in securing zero carbon energy which is reliable, flexible and convenient for customers to use. This year, we have moved forward at pace with our flagship hydrogen projects, HyNet North West (NW) and HyDeploy, providing policy makers with much-needed evidence of hydrogen's potential to realise the UK's net zero ambitions in homes and industry.

## HyDeploy 1

This pioneering green energy demonstration is the first in the UK to inject a blend of up to 20% hydrogen into the normal gas supply to help decarbonise domestic heat.

This year marked the successful completion of the first public hydrogen demonstration in the UK. The gas network on Keele University's campus has successfully transported a hydrogen blend to residents in 100 homes in addition to 30 faculty buildings. Our extensive consumer engagement and social research with residents at Keele has highlighted that they noticed no difference when using the blend and are proud to be advocates for this green initiative.



## HyDeploy 2

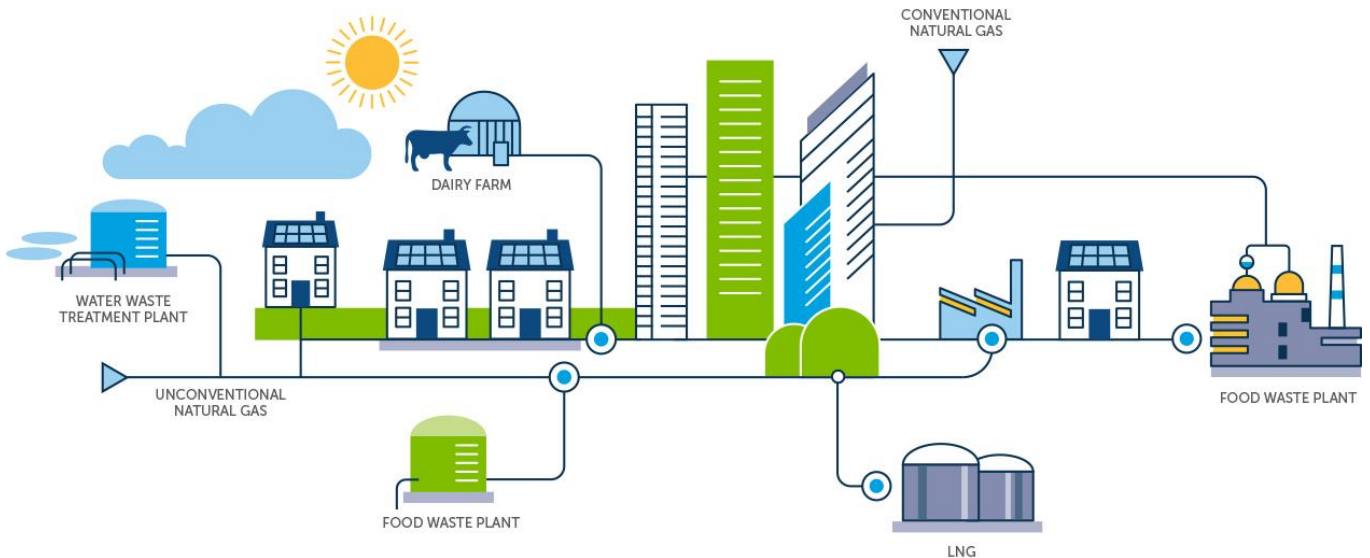


HyDeploy2 looks to conduct the UK's first live hydrogen blend trials on a public gas network to just under 700 homes, as well as addressing wider evidence gaps to allow a hydrogen blend to be rolled out across the UK.

The focus this year has been on building the evidence for the safety case and quantitative risk assessment to apply for an exemption to GS(M)R. (GS(M)R currently only permits 0.1% (by volume) hydrogen). We have been working with the HSE to address any questions and subject to the exemption being granted and aim to commence the trial in Q1 2021.

## Future billing methodology

This project supports the transition to a low carbon energy system by exploring options for a fair and equitable billing methodology for the gas industry in the future. It aims to integrate diverse gas sources without needing to standardise energy content and will inform the industry on billing options for a sustainable gas future.



We have successfully completed the installation, testing and commissioning of the remaining sit installations for the two field trials in the Eastern networks. This concludes a total of 34 operational sites that have successfully transmitted data, to provide a self-consistent, meaningful and novel set of measurements that track the flow of gas through the network. The majority of the installations were completed early in 2020, but due to the COVID-19 pandemic operational activities were impacted for several months until it was safe and practical to resume works in the summer.

## Long Term Asset Reliability Study for Hydrogen Blended Gas

This project is aimed at developing long term evidence on the use of domestic boilers with blended gas through an accelerated testing programme. Operational results have indicated that boilers operate well with a hydrogen blend, as no issues were identified throughout the operational period.



## HyNet – enabling projects

In support of the HyNet NW Hydrogen Cluster, there have been a number of enabling projects, summarised below:

- **Optimising Distribution of Hydrogen** – The project looked at the end to end technical considerations when consenting and designing a hydrogen Pipeline. This project provided a technical framework which then highlighted the need to consider some further technical work ahead of FEED.
- **Optimising Hydrogen Distribution (Phase 2)** - Exploring pipeline routing options in more detail to enable the Development Consent Order (DCO) process
- **HyNet BoD** – Bringing forward technical evidence from the Pre-FEED and additional information which has been acquired through stakeholder engagement throughout the year, including substantial engagement with potential hydrogen users
- **HyNet Control and Operation** - Producing Coarse Hazop on the interfaces with the hydrogen production and storage to ensure that the FEED and DCO process start on the strongest possible footing.



### Optinet

The Optinet project is looking to unlock network entry capacity to receive more green gas, typically biomethane, through within-grid compression and smarter pressure control. Last year, Cadent and project partners WWU made the strategic decision to move the location of the compressor from the Swindon area in WWU's network, to the Eastern within Cadent's network. This year, significant progress has been made in designing the compressor site, securing land, and obtaining planning consent to begin construction. Delays have been incurred due to Covid 19 impacting the compressor procurement, but we're now preparing to begin to build the site and expecting to complete in 2021. The smarter pressure control hardware has been installed in both Cadent's and WWU's respective networks and we look forward testing the systems later this year.

### Transport Pathway

Use of bio-Compressed Natural Gas (bio-CNG) is understood to be a strong enabler for transition to the future use of "net zero" gaseous fuels in transport including hydrogen. However, the transition pathway from bio-CNG use today, to a hydrogen future is not well understood/defined. The Transport Pathways project has sought to examine the transition pathway, by exploring the technical and commercial challenges, and provides insights into potential short-term policy and asks that will enable a "no-regrets" approach to decarbonisation of the sector



Warrington – the largest bio-CNG refuelling station in Europe

### Improving efficiency and the customer experience

In addition to projects that will enable our path to net zero, in the following section we illustrate how we have continued to collaborate with our innovation supply chain to utilise new ideas, through a concentration on research and development investment. We have worked with other network operators within and outside our sector (e.g. the creation of the Energy Innovation Centre) and leveraged the skills and ideas of our colleagues to drive continuous improvements in the service we offer to customers.

## Remote Live Mains Insertion

Remote Live Mains Insertion (also known as Foam Bag Operation on Stubs) is a method to replace short lengths of metallic main stub ends, targeting 4" and 6". This development provides the ability to seal the annular space created between the Tier 1 main inner diameter and the newly inserted PE main outer diameter in its entirety. Replacement is undertaken from a remote location, typically 10 to 20 metres from where the pipe intersects its parent main, usually from a side road into the main carriageway.



- Reduced disruption in busy traffic sensitive roads
- Increased flexibility and practicality
- Reduced costs
- Greater insertion lengths

## Pipeline Spacers

Eliminates the removal of Weko seals on 500mm diameter and above on cast-iron pipelines, by using a product called Pipeline Spacer. The spacers will enable the PE pipe to be 'rolled' over the Weko seal brackets during insertion.



- Improved safety due to reduced manual pipe intervention
- Improved efficiency
- Reduced costs

We also continued to make progress on previous innovation projects from 2019/20:

- Duraseal Repair
- Derivation of a Risk Based Approach to High Pressure Filter & Pig Trap Closure Inspection Frequencies
- Drones – Beyond Visual Line of Sight (BVLOS)
- Easy Assist ECV
- An Investigation of the Performance of Oxygen Depletion Sensors (ODS)





# Appendix 1

In this section we have outlined particular data methodology changes and provided an update on our organisation transformation.

## 6.1 Data methodology

### Carryover of Repex workload from previous years

In accordance with existing data assurance process and timings, approximately 7.4km of work completed in preceding years was not included in previous RRP submissions as these records were not completed in time for inclusion. During 2020/21 these mains have been fully data captured and validated for inclusion in the latest RRP submission, in a similar way there will be a small volume of work will transfer to 2021/22.

### Data associated with CISBOT technology

In line with Ofgem's request CISBOT mains refurbishment has been reported in Table 5.2c (RepEx other mains). Cadent have then aligned the decommissioning of these pipes to Table 5.8 (Decommissioned summary) to ensure alignment of Table

### Methodology for leakage model

To estimate leakage from our gas distribution system we use an Ofgem approved methodology and model that includes;

- an assessment of emissions from mains, services and above ground assets; and
- an estimate of leakage associated with specific mains interference damage incidents.

The model applies pre-determined leakage rates but is updated annually for a number of activity-based factors. The most significant of these being the changes to asset lengths associated with our mains replacement programme, and the management of the system pressures.

A minor modification was accepted by Ofgem in the 2020/21 performance year for Interference Damage reports >500kg. This new methodology was applied to the emissions determination process to enable distribution networks to treat all >500kg interference damage reports (where actual gas loss was estimated) as 500kg hence removing the need for estimated values in this instance. There was no impact upon our emissions as a result of this change.

### Offtake meter error review

During last years RRP submission we highlighted a potential meter error affecting 2 sites and that we were carrying out an investigating. The findings showed that the error reported to two decimal places (as required in the RRP data table) would be 0.00% and therefore the 2020 figures remain as reported.

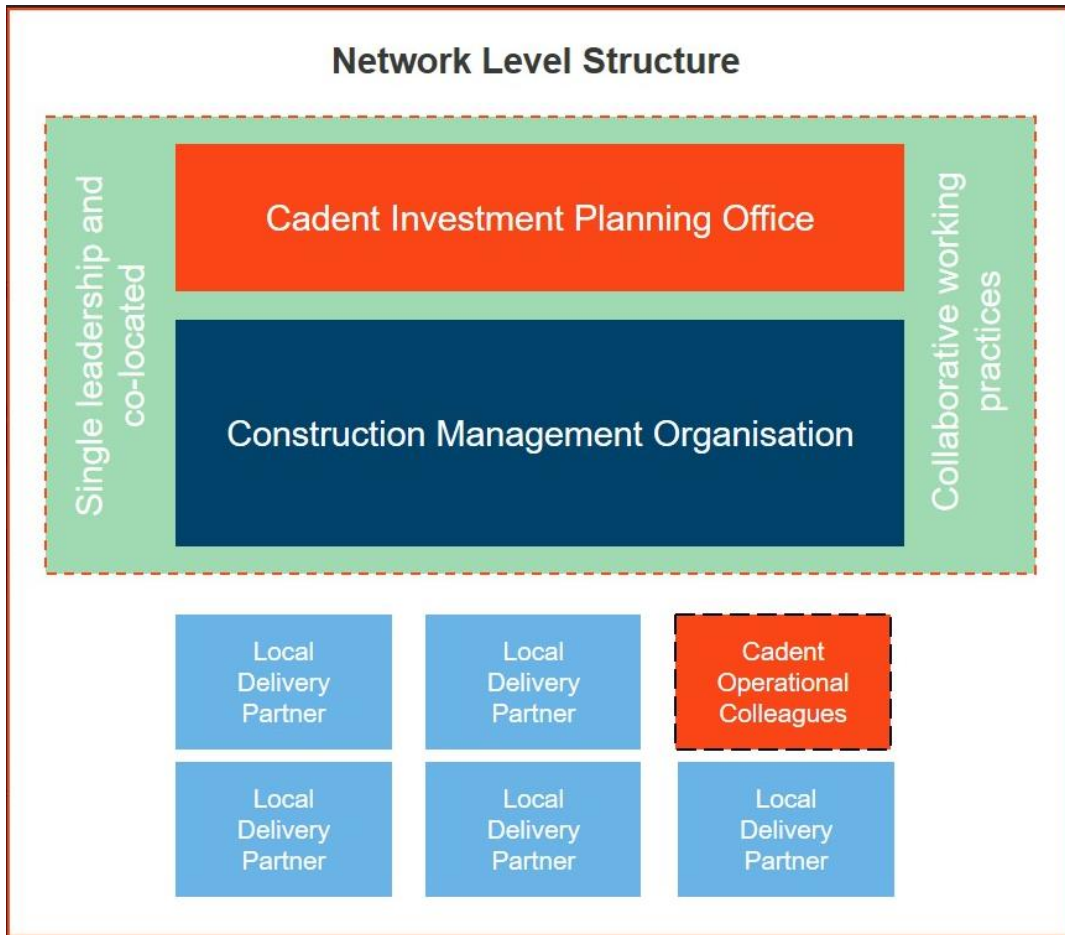
### Methodology for average bill calculation:

We have maintained the methodology for calculation of average domestic bills in line with that adopted in our last RRP submission. The key difference to the approach adopted by Ofgem in their Annual Report is the volume assumption used. Ofgem uses the Typical Domestic Consumption Value (TDCV) which is based on median average values, where as we adopted the mean average consumption by supply point in the 0 to 73,200 kWh per annum load band. Given that our transportation unit prices are driven by both changes to allowed revenues and average demand, we consider that this approach best emulates true network level variability. Additionally, we have presented numbers in 2020/21 prices for the most part in order to isolate the real price impacts of the RIIO framework.

## 6.2 Transforming the business and building agile teams

In the last year as part of our overall transformation to a network aligned model we have awarded four Construction Management Organisation (CMO) contracts to align under our newly created Investment Planning Offices (IPO) to allow us to bring decision making into our Cadent Networks and get closer to our customers and our assets.

This is a more collaborative delivery model than the previous approach with our GDSPs, because responsibility for work selection and design will reside with our IPOs.



The skills brought by the CMOs in programme, construction and supply chain management complement our growing network capability for asset management and investment. As such, the CMO will support the planning and delivery of the Annual Network Investment Programme, with a focus on driving performance.

Alongside this our Local Delivery Partners (LDPs) are contracted directly to Cadent to safely execute and deliver work under the supervision and management of the CMO and in accordance with the legislative framework and policies.

In addition to this and as we now move into a new regulatory period, we need to ensure we have the right organisation to help us deliver on the commitments we have made and in May 2021, we reviewed how we structure ourselves more broadly as an organisation. We have taken the time to review our current organisational design to ensure we are set up for success. Following this review, we have established a new 'People Framework' that will rebalance and redefine roles. This means applying a consistent approach with clear, common definitions of roles at each organisational level and consistent job profiles across our functions. Our proposals include changes to our structure, to reshape and build a stronger, simpler and more agile business and our new organisation will be in place on the 1 September.