Our strategic performance overview

Going beyond

2021/22

Welcome to our 2021/22 strategic performance overview

This overview describes our performance in the first year of the RIIO-GD2 price control and how we have delivered excellent outcomes for our customers during a hugely challenging year with the cost of living crisis.

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Strategic summary

In this section we provide an overall view of our performance in 2021/22 from the perspective of our CEO, Steve Fraser and Chairman, Sir Adrian Montague CBE.

Chief Executive's review

Going beyond for our colleagues and communities

"As I reflect on the first year of RIIO-GD2, I am proud of our people and the tremendous progress we have already made on our journey to achieving our ambition."

Steve Fraser
Chief Executive Officer

When we submitted our RIIO-GD2 business plan back in December 2019, it was founded on my ambition for Cadent to set new standards that our customers will love and that other companies would aspire to.

Since submitting our business plan we have seen significant global events that have drastically changed the lives of our customers, the needs of the communities we serve and the very nature of the energy market. These events and associated challenges have only strengthened my commitment for us to not only deliver excellent customer outcomes but also act as a visible force for good in our communities and to play a leading role in shaping the Net Zero energy market of the future.

As I reflect on the first year of RIIO-GD2, I am proud of our people and the tremendous progress we have already made on our journey to achieving this ambition. I'm also enthused about the next steps in our journey to transform the experiences of our customers, communities and colleagues.

We have made a very solid start to RIIO-GD2, meeting all but one of our annual targets and making good progress to meet our five-year period measures. I am particularly proud of the significant improvements in enhancing the customer experience, reflected in increased customer satisfaction scores across all networks, and the great work we are doing to support our customers and communities, especially those who are living in vulnerable situations.

Driving our performance

In reviewing the past year, I feel it important to start with our greatest asset – our people. I am immensely proud of everyone in the business for their relentless commitment to delivering excellent services to our customers in what has been a challenging year for the communities we serve and the energy industry as a whole.

Our teams have worked tirelessly, day and night, to deliver for the 11 million homes and businesses who rely on us to keep them safe and warm while also showing commitment to make significant improvements across operational performance, safety, and customer satisfaction.

I am pleased to provide an update on the further significant strides we have taken in transforming the business over the past 12 months. Last year I provided an overview of the review we undertook in May 2021 on how we structure ourselves as an organisation. We have now embedded our new 'People Framework' which has seen changes to our structure, removing management layers, building a stronger, simpler and more agile business. We have also introduced new values to bring together all our colleagues. These values reflect how we perform to be the best within our teams and for our customers:

- **We work together** to achieve unity and collaboration. Our colleagues working together to create solutions to get the best outcome we can. Everyone should be made welcome, feel valued, and we embrace diverse teams who work together to deliver for our customers.
- **We drive performance** as one team, always striving for excellence. Thinking through before acting and putting the customer at the heart of what we're doing. We're about people, customers and colleagues; not just pipes.
- **We take responsibility** in everything we do; safety, impact, ethics, always doing the right thing, and considering others' health and wellbeing.
- **We shape the future** to take the initiative and challenge the status quo and welcome new ideas. We are constantly learning, adapting, and taking positive actions for our future to make changes in a sustainable way.

The past year has also seen our leadership teams come together to take the company forward through RIIO-GD2 and into planning for the next price control period. I welcome Anthony Bickerstaff to the team as our new Chief Financial Officer. Anthony brings extensive financial and commercial experience which will help us build on the work of the past two years I have been with the company. Mark Byard has joined us as our new Director of Safety with over 20 years in the utilities industry and operating experience spanning road safety, risk management and occupational health and safety.

We have also introduced a new contract management structure and delivery partners for RIIO-GD2 and embedded our new operating model which gives clear local accountabilities to our teams. Since establishing our 28 customer operations areas in 2021 we have seen huge improvements in enhancing our customers' experience whilst delivering essential works. The significant improvements and transfer of accountabilities to a local delivery approach have enhanced data, engagement and insights, leading to a near real time response to customers and operations.

We have consolidated on the completion of the transition from dependency for Information Technology Services from our former owner National Grid and are tailoring and continually developing our services to the Gas Distribution business and cyber security threat landscape that faces us as an essential service provider. This continues to be a critical area of focus for us, particularly in light of our evolving digitalisation strategy, to support the transition to Net Zero by developing smarter and lower cost networks.

Clearly implementing such significant change in a large company like ours is not going to be without its challenges or hurdles along the way. However, our people and partners have responded to every challenge, showing remarkable resilience and a resolute commitment to drive performance forward. And after a period of consolidation in some areas I am delighted with the month-on-month improvements seen and the consistent, fantastic performance being delivered to our customers as we finish the year.

Delivering for our customers

Last year, at the close of RIIO-GD1, I reflected on our best year of operational performance. In this first year of RIIO-GD2 I am delighted to be able to report that we have hit the ground running, building on this strong platform. We have achieved all but one of our annual targets and we've made good progress against our five-year period measures. We have maintained outstanding levels of safety and reliability by rapidly responding to emergency gas escapes and keeping 99.9% of customers on gas.

We continue to invest to ensure a resilient and reliable network through delivery against the mains replacement programme and optimal investment on our key assets and infrastructure. We replaced 1,679km of old metallic pipe with new plastic pipes that are more resilient and will support the transportation of cleaner, greener energy as we transition to a hydrogen future.

The implementation of the transformation programme I described earlier has enhanced our operating model and we have seen significant improvements in our customer satisfaction performance measures since last year, increasing from 8.81 to 9.05 on average. We have continued to embed our customer safeguarding strategy and have delivered on our promises to support those customers most in need. We have accelerated our environmental action plans and will roll out electric vehicles to our emergency colleagues by the end of 2022.

Whilst we are beginning to feel real cost pressures across our business related to both micro and macro-economic factors; our continued, and in some areas accelerated, programme of transformation is helping to offset these emerging pressures. As such, we remain confident that we will drive benchmark cost efficiency for the sector across the RIIO-GD2 period. We are also tackling the regional pressures that we face in specific areas such as the unique operating environment in our London network, through tailored tools and processes. For example supporting the high proportion of customers in multiple occupancy buildings and developing bespoke building plans so that we can work efficiently and minimise disruption in the event of a loss of supply. I believe we are setting industry standards in this area in particular.

Chief Executive's review continued

Being a force for good

Earlier this year we published Our Social Impact report, which outlines our ambitions over the next decade to make life easier, fairer and greener for the communities in which we work, and for our customers and our colleagues.

I believe this report marks a step-change in Cadent's, and the wider utility sector's, approach to the social impact of our operations and I am proud that we are committing to some very ambitious goals. It is my hope that by adopting these goals we will make millions of lives better across the areas we serve.

The last year has been particularly difficult for our customers, communities and colleagues with the cost-of-living increase, especially with the price volatility and supplier failures we've seen across energy markets. We continue to work closely with industry and with Ofgem to ensure we do everything we can to keep our proportion of the gas bill as low as possible. I am proud of the leading role we have played in supporting the sector's response to the supplier failures in providing liquidity support to our gas shippers, supporting the supplier of last resort process and helping to manage orderly exits from the market where possible to minimise disruption and costs to consumers.

In response to the increases in the cost-of-living we've refocused our efforts with the Cadent Foundation on fuel poverty, to offer support to our most vulnerable customers and communities. We absolutely recognise the responsibilities of companies like ours to do the most they can to help during difficult times. As such, we have worked hard with our community partners to identify and deliver 3,269 free or subsidised gas connections to fuel poor households using our RIIO-GD2 funding and supplemented this with awarding 45 grants amounting to £3.9 million through the Cadent Foundation.

Ofgem's introduction of the Vulnerability and Carbon Monoxide Allowance (VCMA) in RIIO-GD2 has provided us with the flexibility to deliver an even greater positive impact to our customers and the communities we serve and do much more to support customers living in vulnerable situations and raise awareness of dangers of carbon monoxide. In our first year we spent circa c.£3 million on initiating 39 projects generating over £84 million in societal benefits, reaching millions of our customers. Each of our VCMA projects have contributed towards the delivery of the four priority areas we set out in our vulnerability strategy, namely tackling fuel poverty, raising carbon monoxide awareness, going beyond to never leave a customer vulnerable without gas and identifying individual needs and joining up services.

Our purpose is to help people to stay warm and independent in their homes no matter what their circumstances, and the launch of the Warm Hubs and Centres for Warmth has seen us work to achieve this in some of our most vulnerable communities. I have been proud to see all the volunteering efforts our colleagues have delivered this year, reaching out to our communities, working closely with local foodbanks, providing energy referral support, and helping to make life easier for those living in difficult situations.

In January 2022, our employees voted to partner with Emmaus UK, an adult homeless charity and social enterprise. They support individuals experiencing homelessness by providing wellbeing support, meaningful work experience and training, and a home for as long as someone may need it. Through partnering with Emmaus UK, we will be providing vital support through fundraising, volunteering, and by sharing expertise on energy efficiency and employability skills.

Our Critical Friends Panel has engaged with us throughout the year to help shape and provide feedback on how we support our customers in vulnerable situations. We've been talking to our focus groups and panels about what matters most to them about the transition to a greener future and vulnerability, and they have given great insight into how their priorities have changed. We have responded to their concerns about the cost-of-living and energy security with our Force for Good strategy. This is critical as we focus on secure warmth for everyone, opportunities for communities to thrive, and on leading the energy transition. Playing our part to help everyone to heat their homes more affordably is something I am incredibly passionate about, as is delivering an industry-leading approach to contributing positively to people's lives.

Protecting the planet to create a cleaner, greener future

In November, we attended COP26 to showcase how the gas industry can and will tackle climate change. We continue to champion a whole systems approach to decarbonisation, emphasising the role of hydrogen as a low carbon alternative to natural gas. We have been leading several projects and trials, as well as meeting leaders across the political spectrum, industrial users, and multinational energy companies to establish key relationships for hydrogen production and blending.

I am particularly delighted that we have been successful in getting to the next phase of selection for the Hydrogen Village demonstration project. Converting the gas networks of a 2,000-home village from natural gas to lower carbon hydrogen would reduce the carbon emissions linked to home heating by reducing overall emissions by around a quarter.

This builds on the news of the UK government announcing that our HyNet North West project has been selected in track 1 of the industrial clusters for decarbonisation. Through local delivery and use of Hydrogen, HyNet North West will transform the North West into the world's first low carbon industrial cluster. These developments are key milestones for the industry and our contribution to tackling the global fight against climate change.

Schemes like this confirm our belief that hydrogen will play a vital role as an energy source for industry, for transport, for power generation, and for heating buildings and homes. We would argue the gas network offers a seamless and familiar transition to a cleaner, greener future, and I was pleased with the launch of our Green Print and Ten Point Plan strategies to demonstrate our long-term commitment to decarbonise heat while minimising the impact to consumers.

We continue to invest significant funds into hydrogen development by training our people, developing the right skills, and ensuring our assets are ready for the future. Even as we look forwards to a hydrogen future, we must continue to deliver for our customers today. Every interaction, every connection, and every investment project allows us to demonstrate our expertise and to build trust to help shape the future of gas.

As the UK's largest gas distributor, we are acutely aware of the scale of change needed to achieve net zero and are focused on playing our part. To enable the energy sector to make changes at pace, we need to ensure regulatory and industry frameworks are fit-for-purpose to support the energy transition.

Recognising the rapidly evolving whole energy system, we have also taken a leading role across the industry to help shape the future of regulation. In March 2022 we published our Developing the Green Print for economic regulation – RIIO for 2050 paper. Our view is that while RIIO and previously RPI-X successfully managed the transition of public utilities to private network companies and supported more efficient delivery of outcomes for customers, the framework in its current form is likely to need significant evolution to deliver net zero. Our paper identified five critical areas where we believe we can start to make changes well in advance of the next price control and Government decisions on heat policy in 2026. We are now actively engaging with Ofgem, BEIS and other stakeholders on each of these to devise potential solutions to drive the thinking forward.

Final reflections

I would like to thank everyone in Cadent for their commitment, their relentless pursuit for ever-improving performance, and their unity in working together and bringing their best self to work. I recognise this year has been another challenging one to navigate but we've shown that, by bringing together the best talent in the industry, we can strive for excellence as we lead the way to a cleaner, greener future.

Steve Fraser
Chief Executive Officer

99.9%

network reliability

9.05

average Customer Satisfaction score

1,679km

of metallic mains pipe upgraded

2,000

Homes shortlisted to convert to hydrogen

£84m

of societal benefits from vulnerability and carbon monoxide projects

Chairman's statement

We are on a *transformational* journey

"Our focus in the last financial year has been on the transformational journey to position Cadent as one of the top performers in the industry."

Sir Adrian Montague CBE
Chairman

Transformational journey

Our colleagues have managed magnificently as we faced continuing COVID restrictions that tested our ability to perform for customers against the background of factors beyond our control. Our success is further testament to everyone who came together to work through such a challenging period. I have seen many heart-warming stories in our communities where colleagues worked together to deliver an exemplary service above and beyond their usual roles. We had to adjust our ways of working to continue our critical service while also following government guidance. Against that background, the fact our performance throughout the year remained so strong is a real demonstration of our teamwork, and I'd like to personally thank everyone who performed so well under such difficult circumstances to support local communities and those in vulnerable situations.

Cleaner, greener future

At the same time, we have one eye on the future. We are at the heart of the many industry leading projects around the future role of gas, and a leading voice on the importance of hydrogen in the future energy mix to achieve our net zero ambitions. To make hydrogen a future reality, the Board is currently working through several key areas in the supply chain and continues to be focused on the technical challenges in adapting our distribution system to allow the wide-scale supply of hydrogen. In addition, we are actively engaging with many stakeholders, including Government and regulators, to demonstrate the opportunities and benefits of hydrogen as the UK moves to a low carbon future.

On a more practical front, our HyNet project is moving forward well in the North West, and we continue to work to make the hydrogen cluster a reality, while also learning the lessons that will be vital for a widespread roll-out in the future. We have worked together with BEIS closely in developing their Heat and Building Strategy with a view to ensuring hydrogen is an integral part of the energy mix by 2026. We know there is a long way to go but we are moving in the right direction.

The launch of our recently announced Hydrogen Village in Whitby, Ellesmere Port with our partner British Gas, also in the North West, will be instrumental in delivering decarbonised heat at scale, and the Board is taking a keen interest to see how this develops. This will give us further learnings about what needs to be done to deliver a hydrogen future for homes and businesses, while ensuring we still provide the warmth people enjoy today without major changes to infrastructure.

Strengthening our leadership

I would like to thank Steve Fraser for his leadership during his second full year as CEO. Steve has spearheaded transformational change within the business, and the Board is immensely pleased with the performance of the Executive team: by implementing changes which bring significant experience, ability, and value, they have made a real positive difference to Cadent. We were pleased to welcome Howard Forster and Tony Bickerstaff to the Board this year, with Tony appointed as CFO in February, and Howard joining as an additional Executive Director. We believe these changes have strengthened the leadership team and their collective experience gives us all a strong platform to lead Cadent into its next phase. Following his departure in December 2021, I'd like to recognise all the work Steve Hurrell accomplished during his tenure and wish him well for the future.

Following the separation of the Safety and Sustainability committees, we have seen some real progress throughout the year. Our Safety Committee has been instrumental in setting the tone across the business, with increased focus on ensuring safety remains at the heart of our business.

The Sustainability Committee has made significant progress, especially with the development of our Force for Good strategy which enables us to set out how we can make a positive impact in our communities. Our new charity partnership with Emmaus UK is testament to the life-changing impact we can have in our societies. True to our purpose of keeping people warm, over the next two years colleagues will work closely with the charity to support those experiencing homelessness through fundraising, volunteering, and knowledge sharing.

As we start to live with COVID, it is now time for the Board to re-engage in face-to-face contact and to pursue our commitment to continue to drive the right culture and embed our values at every level of the business. As a result of the transformation programme, we have seen positive changes and great performance, although I know we have much more to do. I am committed to engaging with colleagues, stakeholders, and communities over the coming year so we can drive further performance improvements.

Business plan

Our appeal to the Competition and Markets Authority (CMA) was heard this year and we were pleased to reach a satisfactory outcome where errors specific to Cadent have now been corrected confirming that we are projected to set the efficiency benchmark. Our RIIO-GD2 business plan was developed after listening carefully to the voice of our customers, our stakeholders, and industry about their expectations of us and our services. Our plan, which was developed with the intention of setting the new efficiency benchmark for our industry, was subject to robust and critical challenge by our independent customer engagement group.

Committed to a better future

With increased demand, declining resources, and ongoing uncertainty about the course of the pandemic, 2021 was another challenging year for the many charities which play a huge role in helping the most vulnerable in our communities. From meeting and talking to our charities, there is no doubt the past two years have had a profound impact on the way they operate, which means the work undertaken by the Cadent Foundation is of even greater importance. With the cost-of-living crisis at the forefront of many people's thoughts, we have refocused the Foundation's purpose on fuel poverty. We have seen first hand the impact the Foundation has on many lives and our continued work will be able to support those who find themselves unable to heat their homes.

We are working closely with our partners and advisers to focus on addressing the causes of fuel poverty by looking at infrastructure, utility bills and referral schemes to empower our engineers to support customers through our Reactive Response initiative. This scheme allows our engineers to make referrals to support those customers most at need of financial support. You can read more in the **Annual Impact report**.

Looking ahead

Our focus on operational excellence remains paramount for the year ahead. We have demonstrated our performance across Ofgem's league tables, and our new operating model is successfully enabling local teams to be responsive and to bring an improved customer experience across the networks in which we operate.

I am proud of the work we have delivered to ensure our teams take local accountability for customer experience and relationships. Our mains replacement programme continues to move forward at pace and our new contract management partners are helping by delivering a greater connection and responsiveness to customers. I have seen really strong results from local engagement with our supply chains and from moving decisions close to the communities we serve. This has also enhanced our approach to becoming a diverse business, helping us attract talent and key skills from across the country. We know we have a lot of work to do in this area but Cadent is an exciting place to be as we recognise the scale of work that has been done in a short time to radically transform the business into what it has become today. We understand there will always be short-term challenges we need to confront, and we will always do so. This is against a backdrop of moving into the longer term strategic vision for a hydrogen economy which creates many opportunities for the future of our business.

I would like to acknowledge the operational, business support, and senior leadership teams who have worked tirelessly to deliver a great performance throughout the year, in an environment of much uncertainty. I am sure this will continue into the coming year, and I am very much looking forward to meeting teams across the whole business to see how they are helping build our future network.

Sir Adrian Montague CBE
Chairman

Output performance summary

In this section we provide a summary view of our performance against the RIIO-GD2 outputs.

Output summary

We have successfully delivered against all but one of our annual targets and we're on track to meet the five-year period measures as shown in the table below. We recognise that there are a few period measures where we are below a linear phased target (which we have highlighted as amber), however this is largely due to our internal delivery plans being non-linear and transitional or regional performance factors which we will explain further in the relevant sections below. As such, we remain confident that all outputs will be delivered by the end of RIIO-GD2.

Outcome	Output	Eastern	London	North West (NW)	West Midlands (WM)
Delivering a resilient network to keep energy flowing safely and reliably	Emergency call handling	🟢	🟢	🟢	🟢
	Emergency response (controlled)	🟢	🟢	🟢	🟢
	Emergency response (uncontrolled)	🟢	🟢	🟢	🟢
	Tier 1 mains	🟢	🟢	🟢	🟢
	Tier 1 services	🟡	🟡	🟢	🟡
	London Medium Pressure	N/A	🟢	N/A	N/A
	Network Asset Risk Metric	🟡	🟡	🟡	🟡
	Capital projects	🟢	🟢	🟢	🟢
	High rise building plans	🟡	🟡	🟡	🟢
Providing a quality experience to all of our customers, stakeholders & communities	Customer satisfaction – ER&R	🟢	🔴	🟢	🟢
	Customer satisfaction – Planned work	🟢	🟢	🟢	🟢
	Customer satisfaction – Connections	🟢	🟢	🟢	🟢
	Guaranteed standards of performance	🟢	🟢	🟢	🟢
	Complaints metric	🟢	🟢	🟢	🟢
	Unplanned interruptions – MOBs	🟢	🟢	🟢	🟢
	Unplanned interruptions – non-MOBs	🟢	🟢	🟢	🟢
	Collaborative streetworks	🟢	🟢	N/A	N/A
	Consumer vulnerability minimum standards	🟢	🟢	🟢	🟢
	Consumer vulnerability reputational incentive	🟢	🟢	🟢	🟢
	Personalised welfare	🟢	🟢	🟢	🟢
Tackling climate change and improving the environment	Shrinkage financial incentive	🟢	🟢	🟢	🟢
	Shrinkage reputational incentive	🟢	🟢	🟢	🟢
	Zero carbon commercial fleet	🟢	🟢	🟢	🟢
	Business Carbon Footprint (BCF)	🟢	🟢	🟢	🟢
	Environmental Actions Plan	🟢	🟢	🟢	🟢

Outcome

🟢 Successfully achieved an annual output or on-target to meet the five-year output commitment

🟡 Risk of failing the five-year output commitment

🔴 Failed to achieve an annual output or forecasting to fail a five-year output commitment

Output summary continued

Following our extensive engagement programme, we set out in our RIIO-GD2 business plan the outcomes our customers and stakeholders want us to deliver and the key priorities under these that we need to focus on, as summarised below. In section 4 we explain how we have performed against these outcomes, priorities and delivery against the relevant regulatory outputs that sit under these.

Outcomes our customers need us to deliver

Delivering a resilient network to keep the energy flowing safely and reliably

Priorities

- Managing network asset risk for now and the future
- Cyber resilience
- Physical security
- Workforce planning
- Data strategy

Providing a quality experience to all of our customers, stakeholders & communities

Priorities

- Setting standards that all of our customers and stakeholders love
- Keeping the energy flowing
- Minimising the disruption from our works
- Supporting customers in vulnerable situations

Tackling climate change and improving the environment

Priorities

- Decarbonising our business operations
- Reducing our wider environmental impact
- Facilitating the low emissions energy system transition

Trusted to act for our communities

Priorities

- Building trust through every action
- Making a positive difference for our communities
- Sustainable engagement to drive better customer outcomes
- Creating an environment for our employees to thrive and be proud of the service we deliver
- Transparency in how we operate

Financial performance summary

Financial performance summary

In this section we provide a summary of our cost performance and transportation revenue in the first year of RIIO-GD2 and assess our impact on customer bills.

Financial performance summary continued

Totex performance

The CMA appeals process was concluded during the year, enabling key elements of the RIIO-GD2 framework to be finalised and we have a clear plan to deliver on our objectives during the regulatory period. The CMA appeals process confirmed that we set Ofgem's newly defined efficiency benchmark for the sector, as was the ambition of our stretching business plan. We remain committed to providing the best for our customers and ensuring that Cadent can continue to deliver a safe and reliable energy network now and lead the development of a net zero future.

In the first year of the RIIO-GD2 regulatory period, we have invested £598m in our network to deliver on our commitment to provide a resilient network for our customers as part of an overall investment of over £3bn over the five-year regulatory period. Our ongoing mains replacement programme successfully transitioned to a new model on 1 April 2021, utilising the skills and expertise of our Construction Management Organisations, together with the flexibility of working with a number of Local Delivery Partners. Our transformation activities which have been a key focus for our business are now largely complete, creating an organisation capable of delivering the levels of efficiency, reliability and service that our customers deserve and our Board expect.

Totex Drivers

Our five-year RIIO-GD2 delivery plan envisaged that the first year would be a transitional one. Not only from the perspective of embedding our new outputs and managing our spend against the challenging allowances set to deliver these outputs, but also as we transform our delivery model and how we work with our supply chain.

Our Totex spend in the first year of RIIO-GD2 is reflective of this expectation and was within 2% of our allowances at a Cadent level. At a high-level this performance reflects a combination of us accelerating elements of our organisational transformation programme to mitigate underlying and emerging cost pressures which we are increasingly seeing in 2022/23, the phasing of our five-year planned work programme and us experiencing less emergency and repair reactive work than forecast.

£'m 18/19 Prices	Allowances*	Spend	Variance £'m	Under/(Over) Spend %
Opex	403	383	20	5%
Capex	171	158	13	7%
Repex	432	440	-8	(2%)
Totex: Cadent	1,006	981	25	2%
Network breakdown				
Eastern	327	333	-6	(2%)
London	264	254	10	4%
North West	234	235	-1	(1%)
West Midlands	181	159	22	12%

* Allowances are based on the Final Determination published in February 2021, adjusted for items within the re-opener pipeline log. This excludes the outcome from the CMA and up-dates to Real Price Effects which have a positive impact on allowances.

Summary of Totex drivers

Drivers	Description	Opex	Capex	Repex
Connections unit costs	• Significant challenges in delivering to the provisional RIIO-GD2 connections unit costs in EN and NW		↑	
COVID-19	• Gradual return to a normal operating environment has seen costs reduce compared to 2020/21			↓
Inflation	• Limited impact from emerging inflationary pressures in 2021/22 but expecting to become more visible in 2022/23 • Significant impact on labour and materials costs	↑	↑	↑
Investment phasing	• Varies by network but at a Cadent level our five-year plans had less than one-fifth (straight-line) Capex and Repex work in year one, with a planned increase in year's two and three		↓	↑ (EN) ↓ (LN, NW, WM)
Lower reactive work	• Lower Public Reported Escapes, reports and repairs • Lower MOBs workload	↓		
New delivery model	• Implementing our new delivery model has provide increased control and efficiencies in some areas • There have been some challenges in implementing the new model in EN, with corrective actions leading to increased costs	↓		↑ (EN) ↓ (LN, NW, WM)
Optimal Network Planning	• Improved network analysis enabling targeting of investment to maximise benefit value including reductions in repairs	↓		
Property	• A delay in the lease for our new Planetary Road depot in Wolverhampton has pushed costs into year two		↓	
Reinforcement workload	• Externally driven workload increases in reinforcement, particularly in EN and NW		↑	
Supply delays	• Global silicon supply issues leading to: • Delays in IS investment • Delays in vehicle procurement		↓	

Totex efficiencies vs allowances

Ofgem and networks are still working together to finalise the disaggregation of Totex to detailed categories/line items. As such, it is not possible to accurately categorise or quantify most individual Totex cost drivers versus allowances or outputs at this time. Ofgem have indicated the intention to finalise this work later this year, so we will be in a position to provide this greater level of detail in our Strategic Performance Overview for 2022/23. As such, for this year we have presented our narrative against our best view of Opex, Repex and Capex allowances.

Investment performance relative to allowances

Our Repex costs in the first year of RIIO-GD2 are 2% higher than allowances at a Cadent level. This performance is reflective of the challenging RIIO-GD2 settlement, a gradual return to a more normal operating environment following the global COVID-19 pandemic, the implementation of our new Repex delivery model, emerging labour and materials cost pressures, and differences in workload phasing between our individual network delivery plans and those assumed in final determinations.

£'m 18/19 Prices	Repex allowances	Spend	Variance £'m	Variance %
Eastern	128	129	-1	(0%)
London	127	130	-3	(2%)
North West	98	105	-7	(7%)
West Midlands	78	76	3	3%
Cadent	432	440	-8	(2%)

Following significant increases in costs in 2020/21 due to the COVID-19 pandemic, our average mains replacement unit costs have been driven back to, or below, those delivered in 2019/20. The COVID-19 pandemic led to many upward cost pressures. From needing to stop a large portion of work during the early part of the initial lockdown period whilst maintaining our supply chain, to us investing in our people, processes and equipment to enable work to recommence safely and through delivering a different, more expensive, basket of work to reduce the need for face-to-face contact with our customers.

During 2021/22 some COVID challenges have remained including responding to the rise in the Omicron variant during the winter period and increased infection rates amongst our people, customers and more generally in the communities that we serve. However, on the whole we have been able to return to a more standard way of working and this has enabled us to drive average mains replacement costs back down.

Mains Replacement, including services, average unit costs 2019/20 – 2021/22

(in 18/19 prices) £/m	Eastern	London	North West	West Midlands
19/20	£210	£396	£218	£214
20/21	£282	£596	£285	£291
21/22	£206	£315	£205	£215

Nb. Average unit rate is calculated as total costs of all mains and services workload divided by the length of mains delivered.

The largest portion of our Repex spend relates to decommissioning and replacing Tier 1 iron mains and undertaking interventions on the associated services. During RIIO-GD2 this work is captured within a mechanistic Price Control Deliverable which at the end of the period will "true-up" allowances to reflect the work actually delivered.

As such, to enable a more representative view on our year-one performance against allowances we have calculated workload adjusted allowances using the information contained within Appendices 1, 2 and 3 of Special Conditions 3.10 and 3.11 in our GT Licence.

As can be seen in the table below, where an assessment against baseline allowances would suggest an overspend of around £9m (3%) in 2021/22 against the combined Tier 1 Mains and Services PCDs allowances, when adjusted for workload this is actually a £35m (11%) overspend.

Nearly half of this relates to our London network where we face regional pressure from working in this unique operating environment. The dense nature of population and the resulting congested utility ecosystem limits the use of least cost techniques (with insertions of Polyethylene pipe often not possible) and has increased delivery times as we need to navigate complex underground networks. The type of housing stock, particularly the presence of converted flats and listed and/or protected buildings means greater levels of enabling and delivery work are needed relative to when replacing similar lengths in the presence of other building types. Alongside these factors, intensive urban road and foot traffic drive additional costs due to the need to break up harder wearing road and pathway materials and comply with streetworks restrictions. Whilst some of these factors were reflected in the allowances for London, in our view this illustrates that the full scale of factors that impact our efficiency in London is not being accounted for.

A similar overspend against workload adjusted allowances was also seen in our Eastern network. This network stretches down into Tottenham and as such has been impacted by the same factors as our London network in several areas. The size and scale of the Eastern network also presented challenges in implementing our new

Tier 1 Mains and Services PCDs spend vs baseline and workload adjusted allowances

(in 18/19 prices) £/m	Baseline allowance	Actual Spend	Variance to baseline allowance	Workload adjusted allowance	Variance to workload adjusted allowance
Eastern	104	106	-2	92	-14
London	82	86	-4	73	-13
North West	79	86	-7	82	-4
West Midlands	65	60	5	57	-3
Cadent	329	338	-9	303	-35

Financial performance summary continued

operating network and led us to taking corrective action including the separation of the network into two operational areas, which inevitably led to some additional cost in the year. These factors coupled with a more challenging work mix led to lower than anticipated productions levels, so additional costs were spread across a lower output.

For Capex we have underspent our year-one allowances by around 7% at a Cadent level. A range of drivers have contributed towards this performance including reduced spend in all networks due to delays in vehicle and IT project delivery driven by the global shortage of electronic parts, a deferral in completion of a large property lease into year two, variance in workload phasing between our individual network delivery plans and those assumed in final determinations with some of this phasing related variance being countered by increased connections costs as well as higher than forecast specific reinforcement workload in Eastern and North West.

£'m 18/19 Prices	Capex allowances	Spend	Variance £'m	Variance %
Eastern	68	70	-1	(2%)
London	31	27	4	12%
North West	41	40	1	2%
West Midlands	31	21	9	31%
Cadent	171	158	13	7%

Operating cost performance relative to allowances

Cadent has continued to deliver efficiencies in the first year of RIIO-GD2 sustaining our downward Opex trajectory in recent years which has enabled us to deliver an outturn £20m (5%) lower than our estimated Opex allowances.

£'m 18/19 Prices	Opex allowances	Spend	Variance £'m	Variance %
Eastern	130	134	-4	(3%)
London	106	97	9	8%
North West	95	90	5	5%
West Midlands	72	62	10	14%
Cadent	403	383	20	5%

Total Direct Opex has fallen year on year by £40m (2021/22: £270m vs 2020/21: £310m). Normalising this movement for Ofgem's changes in treatment of costs between RIIO-GD1 and RIIO-GD2 results in a £34m year on year decrease[1]. At the beginning of 2021/22 we implemented a new delivery model across our core operational processes as part of our ongoing operational transformation. Our customer operations teams, covering emergency and repair activities were organised into regional areas allowing for quicker decision making and improved efficiency. In addition, we have in-sourced several key activities which were previously delivered by external contractors. Having greater control over our workforce has given us greater flexibility to utilise resources across different activities making us both more resilient and efficient, whilst continuing to improve our performance for our customers. The removal of intermediaries has resulted in a reduction in costs particularly in our work execution delivery.

We also experienced significantly lower reactive workload in the first year of RIIO-GD2. This is due to the successful removal of risk through our mains replacement programme and wider capital investment program through RIIO-GD1 coupled with a milder winter. This is evidenced through a reduction in publicly reported gas escapes (PREs), reports and repairs. The associated reduction in cost will benefit the customers through the Totex Incentive Mechanism.

Our London Network carried out lower MOBs workload than expected, reflective of a slower return to a normal operating environment following the global COVID-19 pandemic and resource constraints in the first half of the year. Our teams are now fully mobilised and workload on MOBs is expected to increase over the remainder of the price control period.

Furthermore, Cadent have reviewed the categorisation of Non Routine Maintenance Programme activities and in line with the regulatory instructions and guidance have realigned these activities to Capex which aligns more closely to our statutory accounting treatment whilst driving greater consistency across networks. This results in a reduction to maintenance spend in Opex of £16m compared to allowances with an equal and opposite impact on Capex.

Business Support Opex has increased by £2m year on year (2021/22: £114m vs 2020/21: £112m). Following a change in accounting guidance to Software as a service (SaaS), IT and Telecoms spend has increased as these costs would previously have been capitalised but are now required to be treated as operating expenditure. Underlying Business Support costs (after

Number of PREs, reports and repairs

	PREs			Reports			Repairs		
No.	**2022**	2021	Var	**2022**	2021	Var	**2022**	2021	Var
Eastern	**194,014**	213,186	-17,172	**115,421**	122,622	-7,201	**24,153**	24,209	-56
London	**146,219**	154,603	-8,184	**86,758**	89,473	-2,715	**15,269**	16,967	-1,698
North West	**148,690**	156,245	-7,555	**89,144**	91,364	-2,220	**21,711**	21,116	595
West Midlands	**102.516**	107,983	-5,467	**58,140**	61,278	-3,128	**13,120**	13,062	58
Cadent	**583,639**	632,017	-38,378	**349,463**	364,737	-15,274	**74,253**	75,354	-1,101

Numbers have been taken from RRP Table 11.11 for 2021/22 and table 7.4 for 2020/21

1 Normalising for changes in treatment over different price control periods includes the removal of Xoserve service costs now treated as a passthrough item and the inclusion of Pension Administration costs and Net Theft of Gas recoveries previously treated as Non Controllable expenditure

adjusting for SaaS) have fallen by £7m driven by our continued drive of our support function to become more efficient in supporting our core operational teams.

As part of our drive to deliver our stretching business plan efficiency challenge, in April 2021 as part of our ongoing transformation, we began delivery of our organisational redesign resulting in the removal of management layers and reduced reliance on external labour. We have made a good start on delivering this early in the period to help us manage the upward cost pressures that we are experiencing.

Leveraging our investment in our new IT systems, we are continuing to benefit from increased automation to reduce manual processing across our support functions. We have also on shored key support activities across HR, Finance and IT which were previously being undertaken by a third-party provider giving us more scope to improve our end-to-end processes across business support resulting in long term cost reductions. Our IT function has adopted a new agile approach to working which allow us to continue to benefit from new technologies and reduce the need for manual processing in the future.

Whilst overall Cadent have had strong Opex performance compared to our allowances set in year one, the emerging cost pressures associated with rising levels of inflation are concerning. The evolving challenge is demonstrated by the rising costs of materials, energy and wages we are already experiencing highlighted by our recent pay deal settlement for our Staff and Field Force colleagues. With these pressures unlikely to reverse in the near future, delivery against our plan with continued Opex efficiency embedded will be extremely challenging, however we are mitigating this through our continued transformation programme.

Totex forecast

Our five-year RIIO-GD2 delivery plan envisaged that the first year would be a transitional one. Not only from the perspective of embedding our new outputs and managing our spend against the challenging allowances set to deliver these outputs, but also as we transform our delivery model and how we work with our supply chain.

Whilst it has been a challenging year, we believe that it has enabled us to create a platform that gives us confidence that we will deliver close to the efficiency benchmark across our four networks across RIIO-GD2, however there are significant macro-economic pressures that add to what is already a stretching set of plans.

Looking forward we plan to accelerate investment work during the next two years of RIIO-GD2 so are forecasting costs to increase in these years. We also expect that cost pressures we have seen coming will become more visible and this will drive enormous challenges to manage our costs relative to our ambitious plans. Following a period where COVID-19 resulted in deflationary pressures, we are now seeing significant price growth across all our labour markets, materials and fuel / energy costs. Whilst we have benefitted from fixing some of these costs in the year to March 2022 (e.g. fuel and labour costs), the unwinding of these effects will materialise in future years as prices are reset in what is a very challenging environment. Whilst the current view from most economic forecasts is the currently high inflation will return to a normalised level over the coming 12-24 months, there is no certainty in that.

As such, we continue to deliver our RIIO-GD2 business plan efficiency challenge and have accelerated our organisational transformation in some areas to mitigate these emerging cost pressures as much as possible.

We remain confident that our networks will be setting the efficiency benchmark over the RIIO-GD2 period, including London where that efficiency is impacted by the regional factors discussed earlier, which have recently also been recognised in Ofgem's RIIO-ED2 Draft Determinations.

The table below presents the Totex forecast relative to allowances included within the Final Determinations, adjusted for workload included in our re-opener pipeline log; in line with Ofgem's instructions for this section of the RRP.

The Regulatory Financial Performance Reporting (RFPR) will be available on our website from the end of August 2022 and will demonstrate how operational performance expectations, combined with output delivery incentives, and financial performance impact the expected regulated return. This report will demonstrate performance relative to a more up-to-date view of Totex allowances following the CMA appeals process.

As noted above, Ofgem and networks are still working together to finalise the disaggregation of Totex to specific categories/line items. Unfortunately, as this information is not readily available, a more accurate view of performance relative to allowances will be available following the second year of RIIO-GD2 and this data may impact the representation of regulatory financial performance.

Totex forecast relative to allowances

(in 18/19 prices) £/m	Period Allowances*	Period Forecast Spend	Period Variance £'m	Period Under/(Over) Spend %	2021/22 Under/(Over) Spend %	2022/23 to 2025/26 Under/(Over) Spend %
Opex	1,953	1,936	16	1%	5%	(0%)
Capex	849	905	-56	(7%)	7%	(10%)
Repex	2,193	2,260	-67	(3%)	(2%)	(3%)
Totex: Cadent	4,994	5,101	-107	(2%)	2%	(3%)
Network breakdown						
Eastern	1,637	1,691	-55	(3%)	(2%)	(4%)
London	1,305	1,402	-97	(7%)	4%	(10%)
North West	1,157	1,159	-2	(0%)	(1%)	(0%)
West Midlands	895	849	47	5%	12%	3%

* Allowances are based on the Final Determination published in February 2021, adjusted for items within the re-opener pipeline log. This excludes the outcome from the CMA and up-dates to Real Price Effects which have a positive impact on allowances.

Financial performance summary continued

Transportation revenue

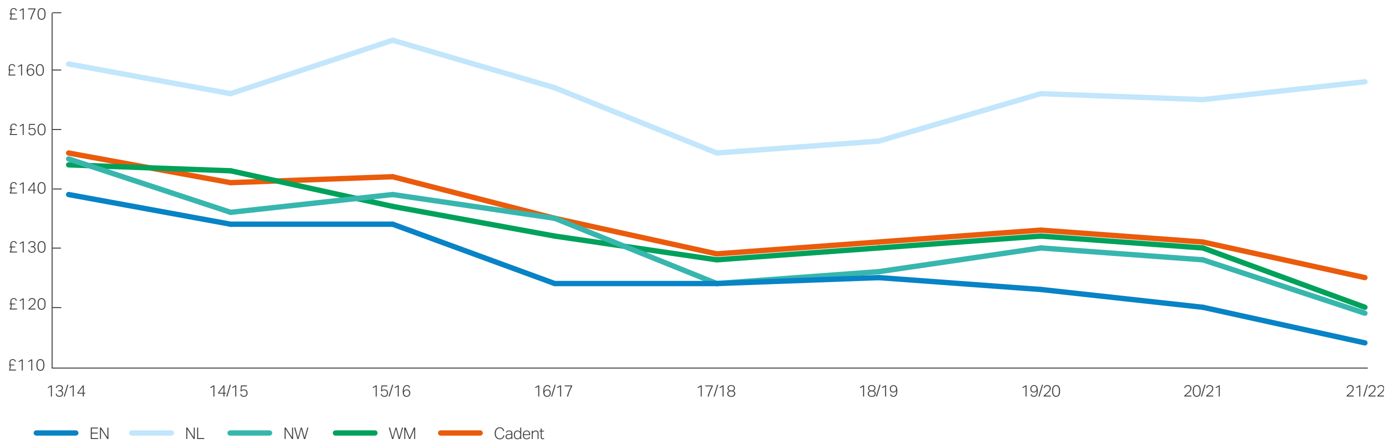
Transportation revenues for the first year of RIIO-GD2 was set in line with the Final Determination. However, subsequent to the Final Determination, our appeal to the Competition and Markets Authority (CMA) resulted in increases in allowances and these will be reflected in future year revenues. In addition, there has been significant macro-economic change in relation to inflation, higher gas prices that impact our cost base and the recent issues with the supply side of the market which will impact Supplier of Last Resort Costs in future years. These items are outside of our direct control but will impact future year revenues. Given this volatility, we continue to work hard to keep the industry informed via quarterly pricing up-dates.

Return on Regulated Equity (RORE)

For RIIO-GD2, we are completing Regulatory Financial Performance Reporting (RFPR) later in the year and will publish the results of this analysis in August. We expect RORE on average over the five years of RIIO-GD2 will be in line with or marginally ahead of the allowed returns in most networks, driving the industry benchmark for performance. Our customer score are currently strong and we project continuous improvement driving some incentive outperformance.

We expect to continue to outperform of the cost of debt allowances as a result of our sector leading cost of debt which outperforms the trailing average used in RIIO-GD2. This is largely attributable to the timing of the refinancing in 2017 when the cost of debt was lower than the average over the trailing average period. Once the one-off costs associated with this refinancing are taken into account, the outperformance is less material. Ofgem has agreed that the one off costs of the refinancing should be taken into account in setting RIIO-GD2 benchmark for cost of debt allowances and have agreed with our calculations of the impact.

Contribution to Domestic Customer Bill over time (18/19 Prices)



Average Customer Bill Impact

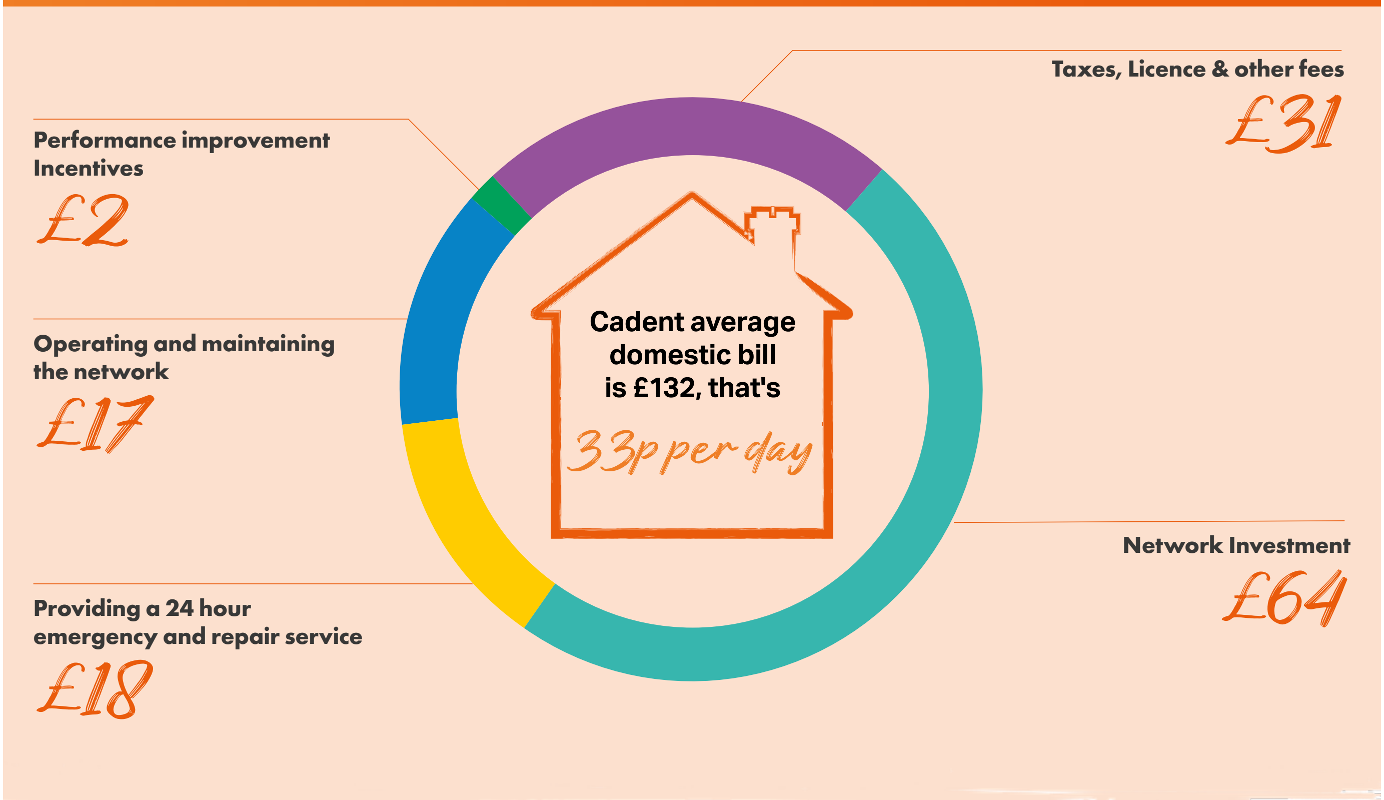
The price of energy and home heating have rarely been bigger concerns for people than they are today, and we are playing our part in helping people across our communities to heat their homes more affordably. A relatively small proportion of a typical household gas bill goes towards the cost of maintaining our gas network and operating the National Gas Emergency Service. Through a continued focus on innovation and efficiency improvements, we are committed to reduce our costs by over £500m by 2026, which supports providing for a real reduction in customer gas bills over time. In 2021/22 a typical domestic customer paid £132 towards the cost of our services, down from £158 at the start of RIIO-GD1 adjusting for the impact of inflation.

This efficiency has been delivered alongside improved customer services, whilst leading the way to a low carbon economy, to meet the UK's net zero targets. Whilst we're doing what we can to minimise our costs to reduce customers' gas bills, we're also committed to helping over one million households who are living in fuel poverty. We have established a range of support programmes, including providing free energy and income advice, debt consolidation services and funding the repair or replacement of gas boilers and appliances. Energy efficiency is another key focus. Alongside a large scale education programme providing tips about how to reduce energy usage in the home, the Cadent Foundation is also funding in-home energy efficiency improvements, such as more energy efficient appliances and home insulation measures. The figure below explains, how the work we do is included in the cost of gas bills. It is important to note that gas customers do not directly pay their bills to us, they pay their gas supplier, who pay Cadent for maintaining our network and transporting gas on their behalf.

We are also aware that a typical energy customer does not exist and customer bills and consumption increase depending on a number of factors not least the presence of higher quality housing infrastructure including strong insulation and efficient boilers. The support programmes put in place highlight how we taking every step to ensure the support is there for those most in need.

There is also a difference in our contribution to customer bills across our networks, the charts below show our impact on bills across our four regulatory networks. The main drivers of differences relate to the number of customers in each network relative to the quantity of historic investment.

Cadent domestic customer bill breakdown 2021/22 (nominal prices)

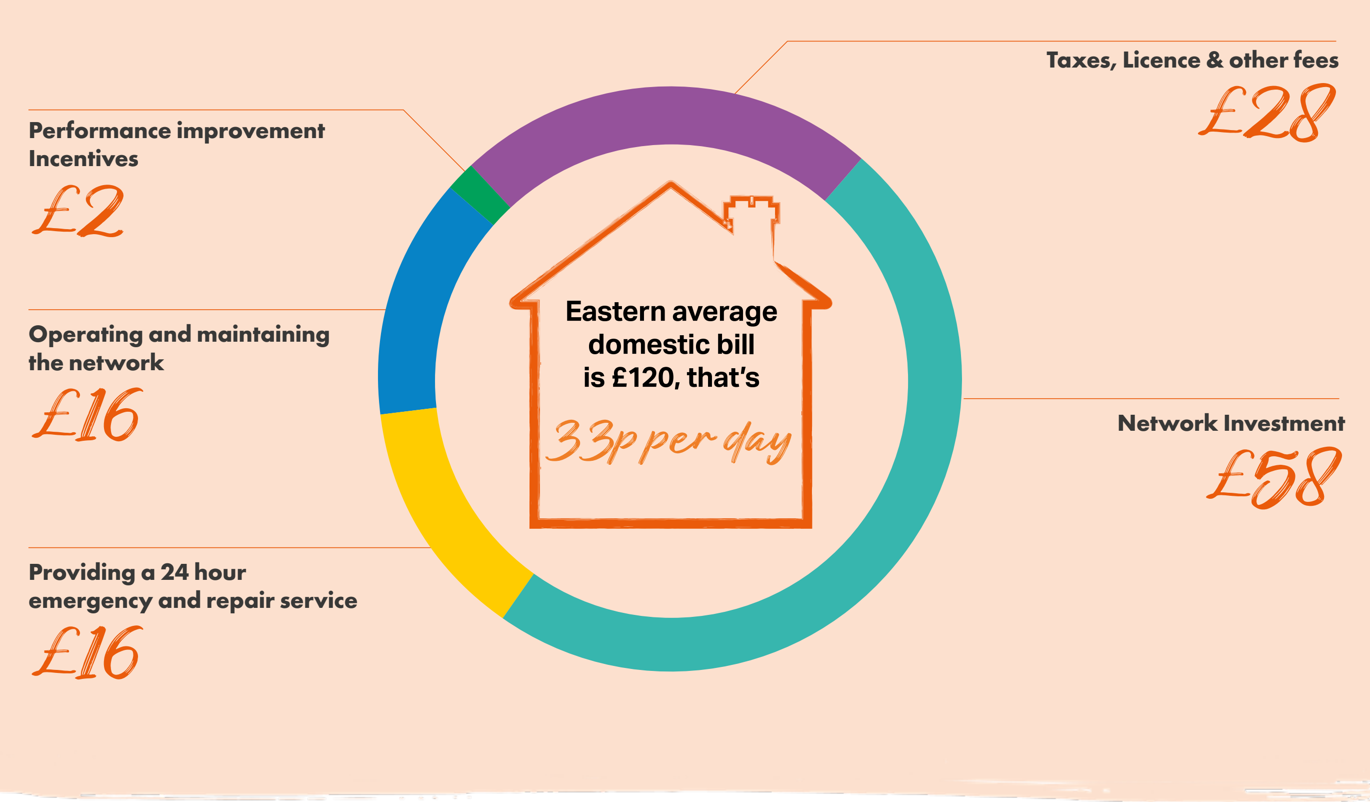


Our charges made up only 6% of the average domestic customer bill in 2021/22

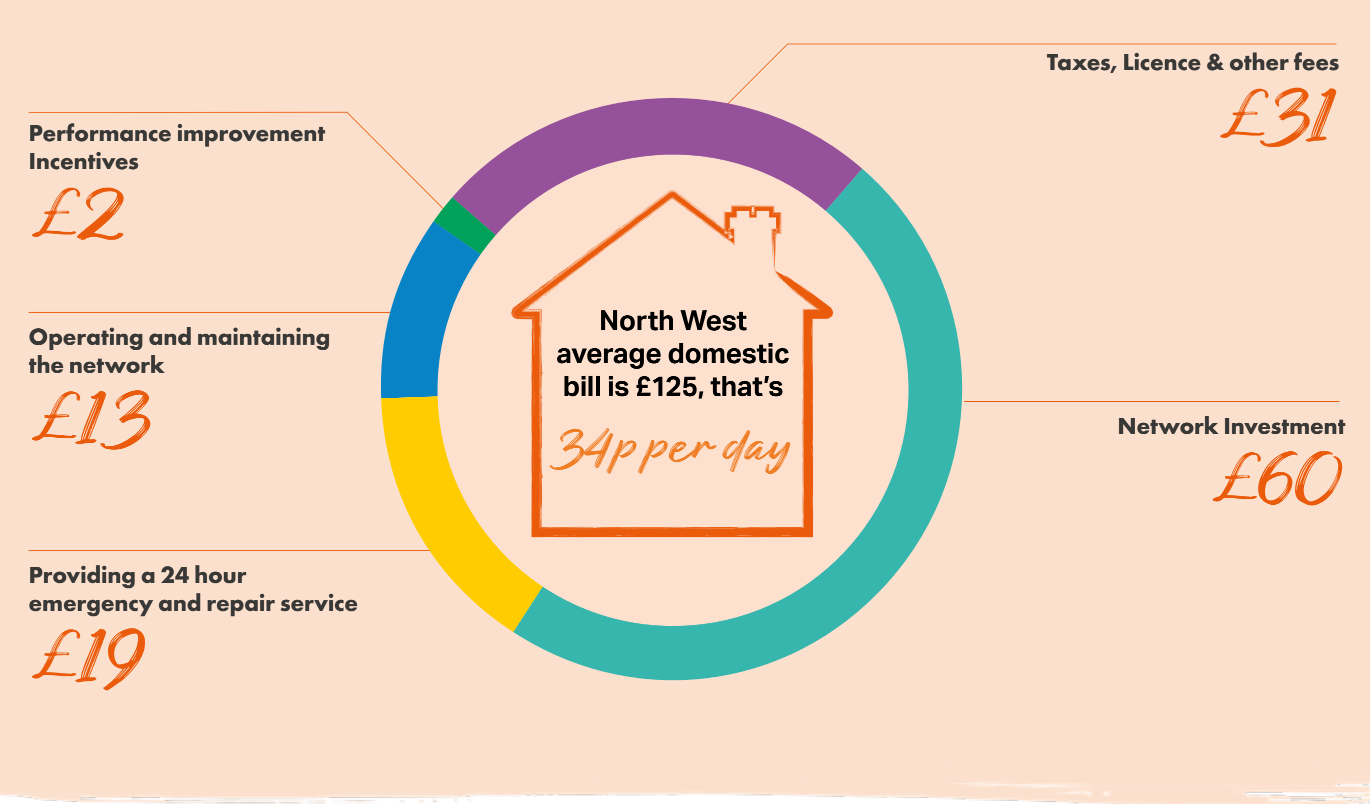
Financial performance summary

Financial performance summary continued

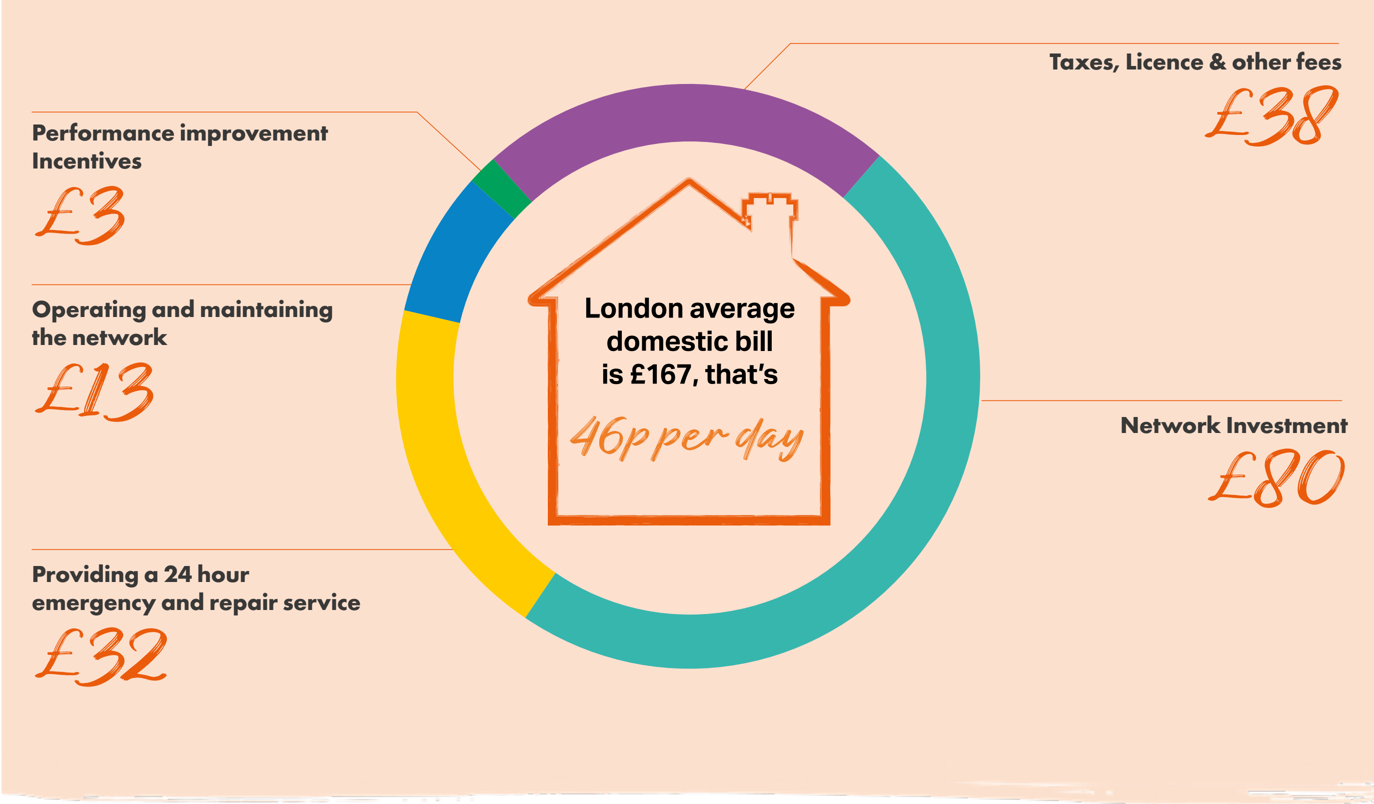
Eastern domestic customer bill breakdown 2021/22 (nominal prices)



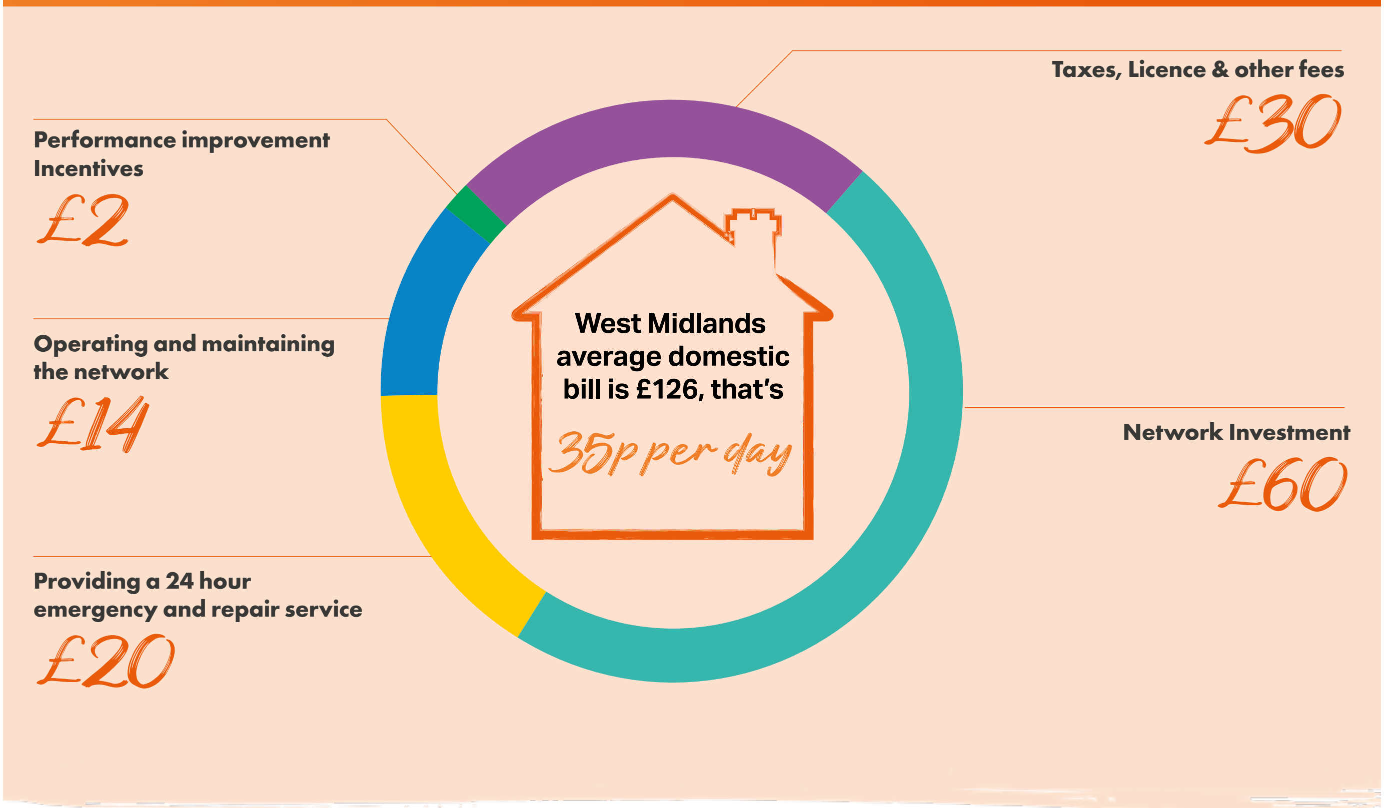
North West domestic customer bill breakdown 2021/22 (nominal prices)



London domestic customer bill breakdown 2021/22 (nominal prices)



West Midlands domestic customer bill breakdown 2021/22 (nominal prices)



Performance in depth

In this section we provide further detail of our performance against the RIIO-GD2 outputs and how we have delivered against our business plan, including where we have excelled and our areas of focus.

Delivering a resilient network to keep energy flowing safely and reliably

Key performance highlights in 2021/22

"We have continued to deliver a safe and resilient network to our 11 million customers, maintaining 99.9% of network reliability, investing in our network to improve its resilience and enhancing our cyber resilience."

World class emergency response

1,483,859
calls received in 2021/22

98.2%
uncontrolled emergencies attended within 1 hour

92.46%
calls answered within 30 seconds

98.8%
controlled emergencies attended within 2 hours

Developing a safer and more resilient network

1,535km
Tier 1 mains replaced

136,127
Tier 1 services relayed / transferred

5.26km
London Medium Pressure programme length decommissioned

Investing in our network assets

£R2.5m
NARM monetised risk delivered

1
Major capital project delivered

Proactive interventions in high rise buildings

219
High rise building plans developed

Ambition for remainder of RIIO-GD2

We will build on a strong start to RIIO-GD2 and are committed to

Maintaining
>97%
response to emergencies within standards

Replacing
7,692km
of Tier 1 mains by the end of RIIO-GD2

Reducing NARM monetised risk by
£R19.3m
by the end of RIIO-GD2

Performance in depth

Delivering a resilient network to keep energy flowing safely and reliably continued

Managing network asset risk for now and the future

Our customers tell us that delivering a resilient network is the cornerstone of what they expect from us and managing the risk on our network is paramount to achieving this. This includes our response to emergency gas escapes, investment to improve our network resilience including mains replacement and our asset health investments, and the development of high-rise building plans.

Responding to gas emergencies

Answering emergency calls

We operate the National Gas Emergency Service contact centre, providing a 24/7 emergency call handling service, taking calls and giving safety advice on behalf of all gas networks across the UK. In 2021/22 we received c.1.5m telephone calls and answered 92.46% within 30 seconds, exceeding the 90% regulatory standard of service.

We experienced one issue with our primary Telephony platform resulting in a system failure that impacted a small number of calls. Further detail is provided in appendix 1.

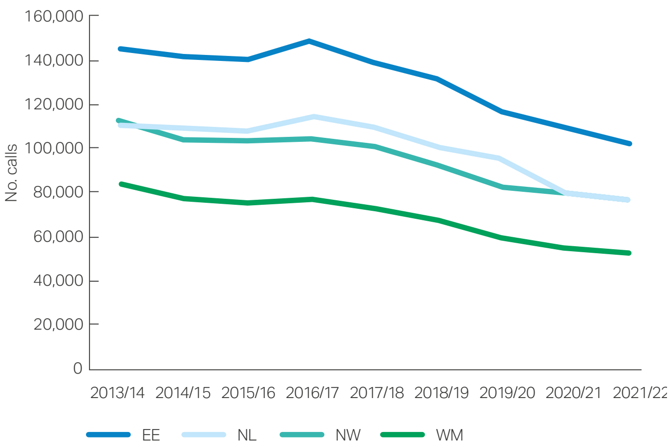
Attending emergency gas escapes

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.

Responding to our customers rapidly when gas escapes are reported remains one of our top priorities and we continued to deliver on the emergency standards across all networks. In 2021/22 we attended over 280,000 gas escapes and on average across all networks 98.2% were within 1 hour for uncontrolled escapes and 98.8% were within 2 hours for controlled escapes, and we exceeded the 97% regulatory standard of service across all networks for both standards as shown in the table below.

We continue to see a downward trend in the volumes of public reported escapes which is due to experiencing milder winters and the positive impact of our replacement of iron pipes with more reliable plastic pipes through the mains replacement programme.. This has also lead to a reduction in reactive services and Multi Occupancy Buildings (MOBs) intervention workloads. The graph below shows how public reported escapes have decreased by 31% since the start of RIIO-GD1.

Trend in public reported escapes



% Emergency gas escapes responded to within timescales

Outcome	Eastern	London	North West	West Midlands
Controlled gas escapes attended within 2 hours	98.8%	97.5%	98.9%	99.8%
Uncontrolled gas escapes attended within 1 hour	98.1%	97.6%	98.1%	99.3%

Mains Replacement

The Iron Mains Replacement Programme (IMRP) was introduced by the Health and Safety Executive (HSE) in 2002 for Gas Distribution Networks to improve the resilience of their pipes by replacing old iron mains pipes that are more prone to failure with new resilient plastic pipes. Whilst safety was the key driver of the IMRP, there are also significant environmental benefits to the programme. This includes a reduction in the amount of methane natural gas that escapes into the air and enables the transition to net zero as plastic pipes allow for the transportation of hydrogen gas, both as a complete gas or blended with methane gas. Figures published by the Energy Networks Association (ENA) show that by 2032 gas network companies will have reduced emissions from transporting methane natural gas around the country by the equivalent of the carbon emissions of 526,433 cars since 2014.

For RIIO-GD2, delivery of the mains replacement is governed by the Tier 1 iron mains and services Price Control Deliverables (PCDs), the Tier 2A mains and services volume driver, the Cadent London network-specific London Medium Pressure programme PCD and the Network Asset Risk Metric (NARM). All of these mechanisms were introduced by Ofgem to ensure that the price control was adaptive to the workload actually delivered by GDNs..

Tier 1 iron mains PCD

The Tier 1 mains PCD includes a baseline target for us to decommission 7,693km of Tier 1 iron mains by the end of RIIO-GD2 across all networks. In 2021/22 we decommissioned 1,535km of Tier 1 mains which is just below (0.2%) one-fifth of the Tier 1 mains PCD target in RIIO-GD2 (i.e. 1,539km).

NW exceeded this implied annual target by 10%, whereas EN (95%), LN (97%) and WM (97%) were all below this straight-line profile. However, the shortfall is largely due to the phasing of workload as we had intended the first year of RIIO-GD2 to be a transitional year embedding new outputs and new delivery models in our networks. The delivery run rate in the latter part of the year and early part of year two demonstrates that our plans will deliver the RIIO-GD2 period baseline target.

It should be noted that the length reported for this PCD is purely for Tier 1 mains and excludes stubs and diversions which are reported separately. Our HSE reporting requirements include all of the Tier 1 iron mains under 30 meters that have been replaced (including stubs and diversions) and in this regard across all of our networks we have replaced just over 1,542km against the HSE length which is in line or ahead of the HSE targets set.

Tier 1 services PCD

The Tier 1 services PCD includes a baseline target for us to undertake 779,882 interventions (i.e. relay or test & transfer) to services associated with Tier 1 mains by the end of RIIO-GD2 across all networks. In 2021/22 we undertook 136,127 service interventions achieving 87% of our first year expected target of 155,976 service interventions.

Whilst there is a link between the length of mains decommissioned and the number of services delivered, it is not always linear as the density of services to mains will differ depending on the workload mix.

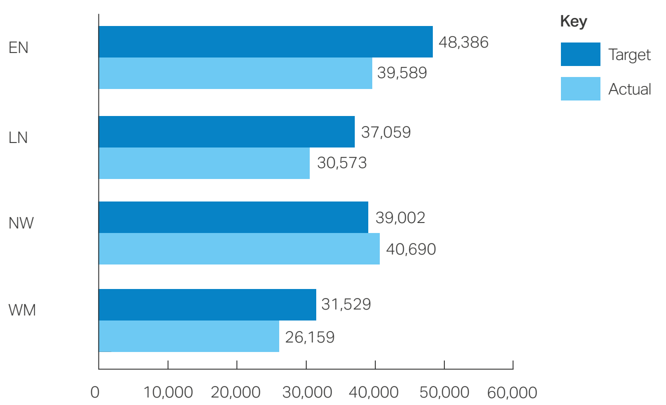
Linked to their delivery in excess of a straight-line profile on Tier 1 mains, NW also delivered 4% more services than the baseline target. EN (81%), LN (82%) and WM (82%) delivered less services compared to the baseline target. In all networks we experienced a lower service density per kilometre of Tier 1 main decommissioned than assumed within our baseline target.

Whilst lower than our baseline target, the services per kilometre of mains delivered has increased compared to the last two years across our networks, largely due to the change in the type of work we have been delivering since exiting the peak of the COVID-19 pandemic. During the pandemic we focussed on higher diameter band workload to minimise customer contact.

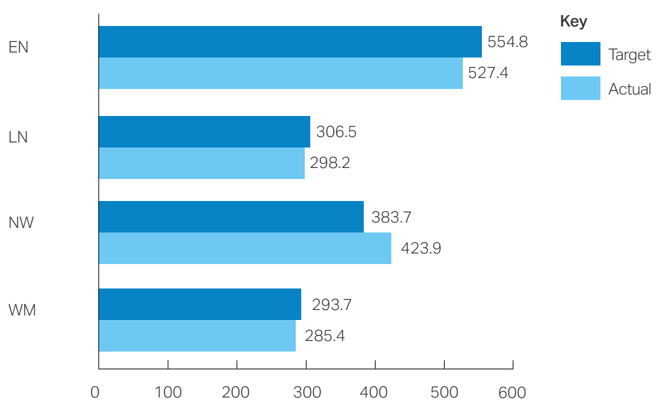
We expect to deliver our Tier 1 mains target by the end of the RIIO-GD2 period which will also lead to increased service interventions, however, as explained we have less control over service interventions as it is dependent on the density of services to mains pipes which can vary depending on the work delivered.

At the end of the price control our allowances under both the Tier 1 mains and services PCDs will be "trued up" to adjust for any variance realised between our baseline targets and the actual work we deliver. This dynamic mechanism provides flexibility for GDNs to optimise delivery whilst ensuring that customers only pay for the work delivered.

Tier 1 services vs. implied annual target



Tier 1 mains decommissioned vs. implied annual target



Performance in depth

Delivering a resilient network to keep energy flowing safely and reliably continued

Tier 2A volume driver

We have decommissioned 1.4km Tier 2A length in 2021/22, primarily in LN. The table below provides a network breakdown:

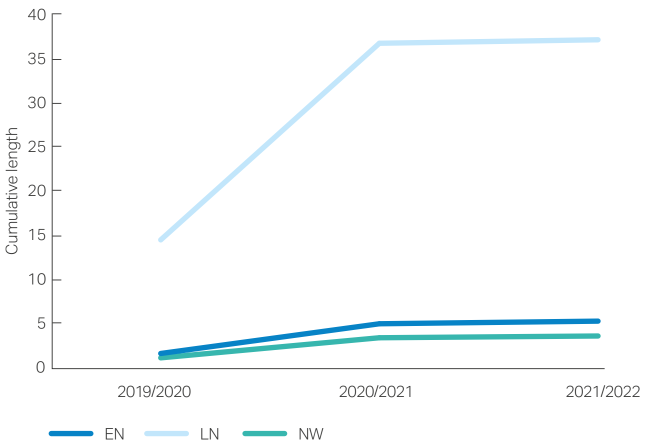
Tier 2A length decommissioned

Network	Tier 2A length (km)
EN	0.001
LN	1.345
NW	0
WM	0.062

CISBOT

The Cast Iron Joint Sealing Robot (CISBOT) is a remotely controlled robot used to repair and upgrade our gas pipes in some of the busiest streets across our networks. The CISBOT, developed by our partners ULC Robotics, works by 'crawling' along the inside of a gas main, sealing any leaks in the joints using a special sealant solution. It allows road users and pedestrians to get on with their busy lives, as the robot can cover large sections of gas pipe underground from just a single hole (the 'launch' point) in the ground.

CISBOT cumulative length delivered



We take a cost-benefit approach in assessing where and when to use CISBOT and generally use in traffic sensitive and strategic locations where it is difficult to obtain streetworks approval e.g. inner city locations. In 2021/22 we delivered 0.8km of refurbishment through the use of CISBOT. This is not as much as in prior years where we have used the technology as our NARM baseline only includes a small programme of CISBOT work. The graph below shows the cumulative length (km) of mains refurbished using CISBOT on Tier 3 diameter pipes since the implementation of the technique in 2019/20.

We are seeking to expand the use of CISBOT in RIIO-GD2 to deliver greater benefits to customers and have been engaging Ofgem on how the regulatory framework can enable this. We did not include a significant programme of CISBOT work in our RIIO-GD2 plan as trial works to establish the Cost Benefit Analysis (CBA) were still ongoing at the time of submission in in December 2019. However, the subsequent development of our full Cost Benefit Analysis now provides a strong case for the continuation of CISBOT and is supported by our stakeholders.

We are therefore working with Ofgem and propose to use the Clearly Identifiable Over-Delivery mechanism within NARM to enable a larger programme of works in London.

"It (CISBOT) has impressed me and I'd be happy to have it back in the borough as its impact on traffic flows is easily controlled. It's an excellent resource and savings in time and on materials can easily be demonstrated. I'd like to see it being used to its full potential, especially as there is almost certainly going to be an expansion of low traffic neighbourhoods across the country."

Barry Lucas
Islington Principle Technical Officer & Network Co-Ordinator

London Medium Pressure (LMP)

The LMP programme of work, which started in RIIO-GD1, is part of a long-term programme to upgrade and replace strategic sections of the Central London Medium Pressure network. This work needs to be undertaken primarily due to Asset Health and the resultant risk the associated mains pose to nearby buildings and in particular their populations.

The secondary reason for the work is to improve security of supply of the network. Due to the large diameter mains and the current lower MP operating pressure (550bar) of the London MP network we are unable to replace the mains using insertion techniques without elevating the network to 2 bar as our network analysis indicates the network would fail and we cannot simply increase the pressure due to the age and conditions of the existing assets.

The work will take place in some of the most sensitive locations within central London and therefore it is important that Cadent delivers the work in close consultation with stakeholders and with the least disruption to residents, workers, businesses and tourists.

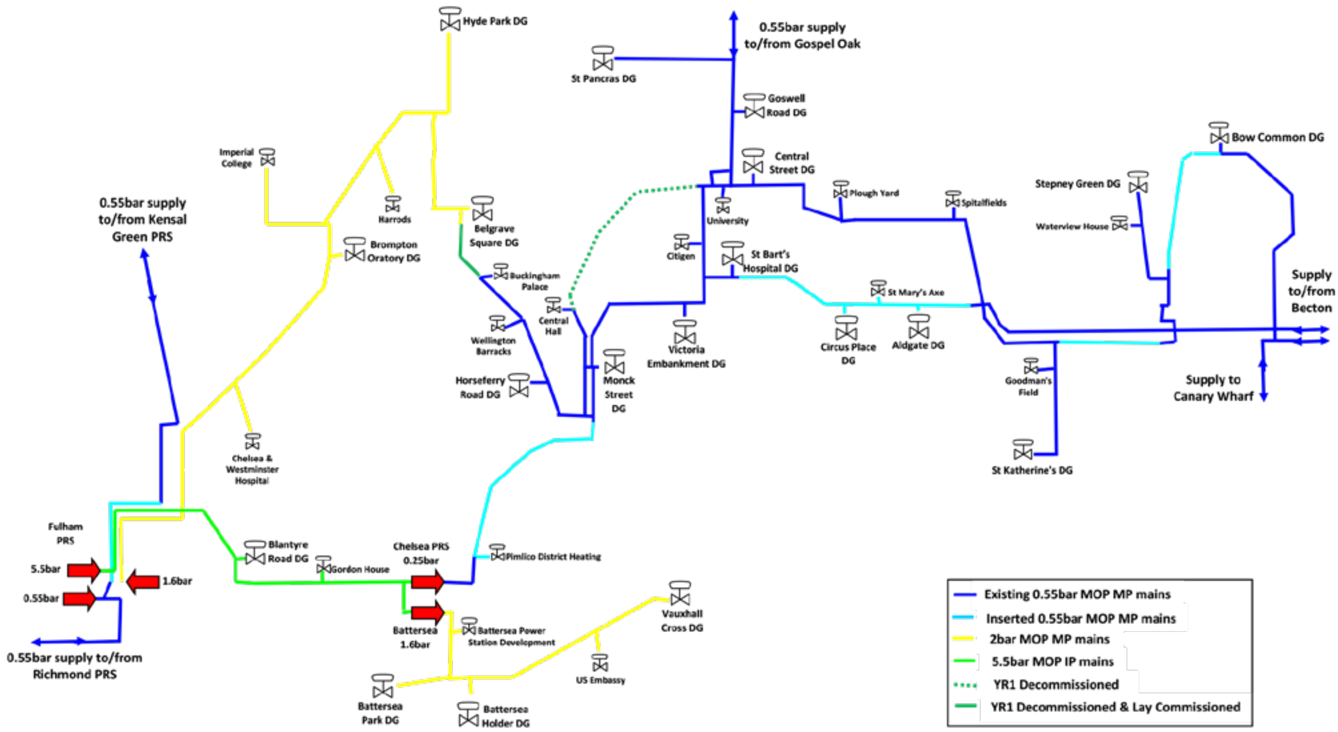
In our RIIO-GD2 Business Plan we proposed to continue to deliver the LMP programme over the course of RIIO-GD2 and the next price control period. Overall, this will involve the renewal of 26km of existing assets and the laying of 1km of new assets to complete the project. For RIIO-GD2 we proposed to replace 9.89km and four specific governors across the route. Our over-arching objective for RIIO-GD2 is to deliver the renewal of the assets in the next phase of the LMP programme to meet our customer and stakeholder expectations with regards to work execution, safety, resilience and value for money.

In 2021/22 we decommissioned 5.26km and commissioned 0.51km of main. The remaining decommissioned length will be commissioned in year two in line with our plans.

We also undertook a governor installation replacement relating to the Belgrave Square to Monck Street route as the existing installation required uprating in order to operate at the increased pressure levels. Additionally, enabling and construction work has been required relating to the Buckingham Palace meter installation which also required uprating to a Medium Pressure inlet and conversion to a governor installation which was relocated upon the request of the Crown Estates. This was not initially specified in our Business Plan submission.

The diagram below highlights where we have commissioned and decommissioned pipe and installed governors.

We are on target to deliver our commitments to the LMP programme and have set out a plan for the next four years. Next year we are planning to commission 2.5km of previously decommissioned main and decommission a further 1.2km which we aim to commission within the year subject to agreement with key stakeholders.
We are also in the process of early stakeholder engagement and enabling works to confirm year three proposals and governor replacement works.



Performance in depth

Delivering a resilient network to keep energy flowing safely and reliably continued

Asset health investment

Capital Projects PCD

For RIIO-GD2 Ofgem introduced the Capital Projects Price Control Deliverable (PCD), an output which holds networks to account for the delivery of specific capital investments. The PCD mechanism allows for funding to be returned to customers if the output is not fully delivered. The projects we have committed to deliver as part of the Capital Projects PCD can be categorised as follows:

- Capacity upgrades >7bar – 13 specific sites upsized to meet peak 1-in-20 demand
- Offtakes & PRS Metering – Metering systems replaced at 18 specific Offtake sites
- Lowestoft – Replacement of interim PE pipes within the service tunnel at Lowestoft Harbour with a permanent 8" steel pipe.

Lowestoft Harbour

In 2021/22 we successfully completed the Lowestoft Habour project. In 2012, a critical Intermediate Pressure (IP) pipeline which crossed Lowestoft Harbour was damaged and abandoned when the northern side of Lowestoft Quay collapsed. We installed an interim polyethylene-pipeline (PE) solution through an existing Anglian Water service tunnel under the harbour, which was safely operated and maintained during RIIO-GD1. Through our RIIO-GD2 Business Plan we sought investment to replace the existing interim pipeline solution with a permanent 8" (200mm) steel pipe to ensure a robust long-term solution.

Capacity upgrades, and offtakes & PRS metering projects

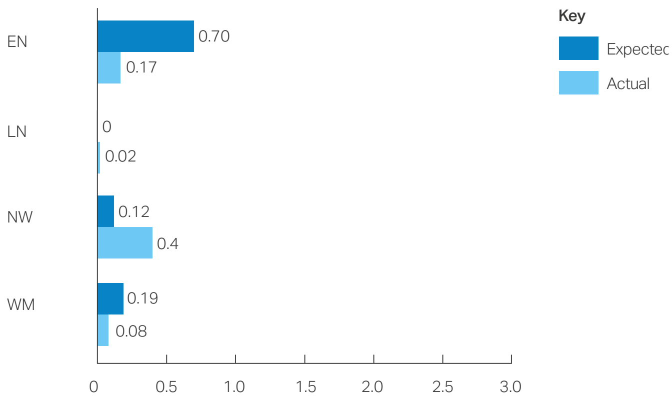
We have not yet fully completed any of these projects, however, many are currently undergoing pre-construction work and detailed design are on track to complete these by the end of RIIO-GD2. The table below indicates the cost we have incurred in 2021/22 across each network:

2021/22 costs incurred for capacity upgrades and offtakes & PRS metering projects:

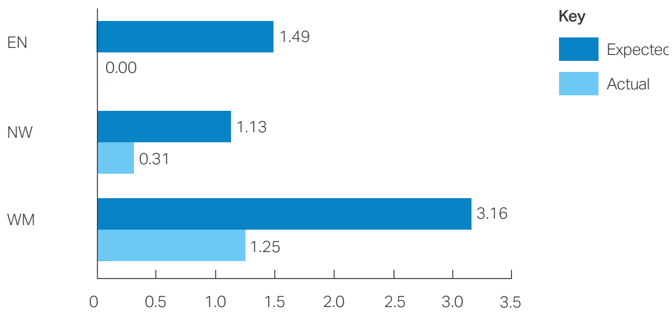
Network	Capacity upgrades 20/21 actual costs (18/19 prices)	Offtakes & PRS Metering 20/21 actual costs (18/19 prices)
Eastern	£0	£166,568
London	N/A	£24,384
NW	£310,512	£36,577
WM	£1,247,834	£78,007

The cost incurred for Offtakes & PRS Metering projects are broadly in line with the phasing of costs set out in our'RIIO-GD2 business plan and licence. However, there is a shortfall in the cost incurred for Capacity upgrades compared to the costs expected in 2021/22. This is largely due to deferral of works and a few projects being re-assessed due to changes in network capacity.

Offtakes & PRS Metering – Expected vs. Actual costs in 2021/22 (£m, 18/19 prices)



Capacity upgrades – Expected vs. Actual costs in 2021/22 (£m, 18/19 prices)



Network Asset Risk Metric (NARM)

The Network Asset Risk Metric (NARM) is a regulatory mechanism designed to encourage networks to continually "optimise" asset-health related investment plans and provide a comparable currency to compare the benefits delivered to customers across companies and sectors. By articulating the benefits of investments into the common monetised risk currency Ofgem and our stakeholders can quickly understand if changes in investments offer the same benefits as the funded Business Plan. There is flexibility within the mechanism which allows us to risk trade to optimise investment whilst achieving the defined reduction in monetised risk.

Not all investments are modelled within the NARM mechanism as there are other regulatory mechanisms, such as Price Control Deliverables, that have been set to measure delivery. The investment categories within the scope of NARM are shown on the next page.

The monetised risk target must be achieved by the end of the RIIO-GD2 period, however this has been phased across each year based on our initial investment plan shown in the table below. The monetised risk targets shown in the table are different to those shown in the licence due to the ongoing work taking place with Ofgem to disaggregate allowances.

Investment categories within the scope of NARM

Mains

- Mains Tier 1 – Steel <2”
- Mains Tier 2B
- Mains Tier 3
- Mains other (inc Steel >2”)
- Mains – Capitalised replacement

Services

- Services not associated with Mains Replacement
- Services Steel Mains (<”2 and >2”)
- Services >30m Iron
- Services Tier 2B

Risers

- MOBs – Planned Refurb/Replace
- MOBs – Refurb/ Replace on Failure
- MOBs – Planned Permanent Isolation (i.e. Energy Exchange)

Offtakes / >7 Bar PRS

NFT Offtakes

- Filters
- Local Gas Treatment (Odourisation)
- Site Housing & Rebuilds
- Regulators & Slamshuts
- Heaters

Pressure Reduction Systems

- Filters
- Site Housing & Rebuilds
- Regulators & Slamshuts
- Heaters

Governors

District Governors

- Housing Replacement
- Refurbishment (Incl. Component Replacement) – IP Inlet
- Refurbishment (Incl. Component Replacement) – MP Inlet

NARM monetised risk targets :

Network	21/22	22/23	23/24	24/25	25/26	RIIO-2 period
EN	R£0.76	R£0.87	R£0.93	R£0.95	R£0.95	R£4.47
LN	R£1.02	R£1.19	R£1.37	R£1.46	R£1.49	R£6.54
NW	R£0.99	R£1.07	R£1.13	R£1.16	R£1.14	R£5.48
WM	R£0.45	R£0.48	R£0.65	R£0.57	R£0.60	R£2.76

High Rise Building Plans

To improve delivery of interventions, carry out faster supply restoration and provide more effective safeguarding of vulnerable customers we have committed to enhancing engagement with building owners to create building-by-building plans for all High Rise Buildings (HRBs) by the end of RIIO-GD2.

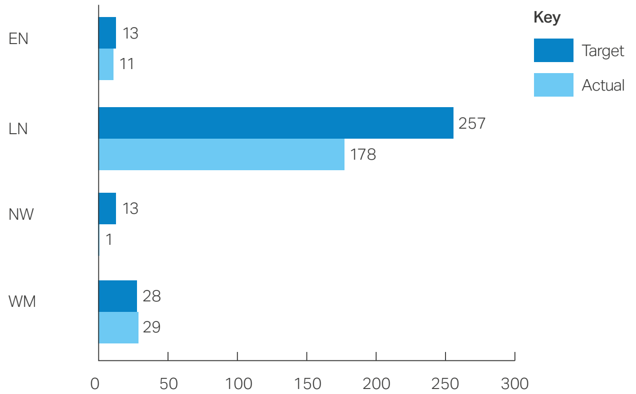
Working with the building owner helps us take a more holistic approach to safety and aligns with the principles recommended by the Hackitt review. It improves the customer experience by establishing a relationship with the owner and identifying customers in vulnerable situations so that we can support them in the event of a loss of supply.

Through enhanced engagement with building owners and other key stakeholders, we have been reviewing and building a management plan template that holds vital asset data, building information and location details that allows us to improve delivery of proactive interventions and operational response and reduces disruption to our customers and ensures we can keep them safe and warm.

We have focussed on developing processes and templates to ensure each building plan provides valuable information and data to allow us to deliver effectively over the RIIO-GD2 period. In doing this, we have not achieved our forecast volume of 311 plans by the end of the first year and have instead developed 219 plans.

The graph below shows that in our West Midlands network we were able to put in place one more plan in our first year than we had forecast. North West completed one of the 13 targeted building plans within the year, however, the majority of the remaining building plans forecast have been finalised in the first quarter of year two. Similarly Eastern developed 11 building plans in year one with the remaining two developed in the early part of year two. Our London Network met circa 70% of their phased targets and whilst this is less than we anticipated a recovery plan has been developed and implemented and we are already seeing a strong outturn in volumes in the first quarter of year two, including closing the gap for year one. Although we have delivered less than our ambition for year one, now that we have embedded robust and efficient processes to ensure we have high quality plans, we are confident that we can make up the shortfall in the remaining years of the price control as well as achieving the ambition to create building plans for all High Rise Buildings by the end of RIIO-GD2.

High rise building plans developed in 2021/22



Delivering a resilient network to keep energy flowing safely and reliably continued

Cyber Resilience

Being part of the Critical National Infrastructure (CNI) in the UK means that technology is core to our operations, and we understand the impact system failures can have on customers and businesses. That's why we're committed to delivering a safe, secure, and reliable network for our customers and the communities we operate in, both now and for the future.

We are also regulated by the Network and Information Systems (NIS) Regulations 2018 that sets out a series of standards that all Operators of Essential Services (OES) need to comply with. Being an OES, we have been incorporating these standards into our resilience plans and risk frameworks, together with carrying out self-assessments against the Cyber Assessment Framework (CAF). This is especially important as cyber threats have significantly increased on a global scale, so we are closely monitoring threats, assessing risks, and adapting our resilience plans in this area to ensure customer data and our critical systems remain safe and secure.

Through the RIIO-GD2 framework we have a number of price control deliverables (PCD) aimed at enhancing our overall cyber resilience strategy, and that complements our requirements under NIS regulations for both Information Technology (IT) and Operational Technology (OT) respectively, with allowances currently granted to us for investing in the latter.

We have focussed on establishing the controls that we feel will enhance our cyber resilience by reducing risk and improving our CAF outcomes, such as providing additional training and awareness for employees, along with investing in new resources and technology. Going forward, we intend to build on this by developing new capabilities and laying the foundations of our hydrogen future. However, all of this is not without challenge especially where there is an ongoing global supply chain issue with certain technologies and a lot of uncertainty of what the next threat could be.

We are intending to submit an application to Ofgem in 2023 under the RIIO-GD2 re-opener framework. Furthermore, through our obligations under NIS and the cyber resilience PCD reporting process, we will continue to provide detailed progress reports and self-assessments to Ofgem in line with the reporting timeframes.

Data and Digitisation

Our Data Management Framework has been evolving over the course of this first year of RIIO-GD2 and the policy we have developed demonstrates our commitment to growing our capability in Data Management.

We also formalised our Data Governance model to bring the visibility and transparency to all our staff on the correct processes and standards we are adopting on our journey to become a more data driven organisation.

Our Open Data Triage process has been in place for over a year and includes assessment of data sharing requests being submitted through the ENA Data Request Tool. The requests that we have noted so far can be classified in two categories:

- **the public data space** – we note repeating requests to share Cadent Network boundaries allowing organisations to understand if the assets are owned by Cadent,
- **requests on details of location and type of our gas assets** – our triage process ensures that we comply with the NIS regulations.

Through the year, we chair a Digitalisation Working Group to ensure that we review our direction and new initiatives and coordinate the work internally. We anticipate evolving the Digitalisation Strategy and Action Plan further over the coming years to ensure alignment with our internal delivery mechanism as we start to adopt a more agile approach to our investments.

More information can be found on our website where we have published our **Digitalisation Strategy and Action Plan**.

Workforce resilience

In our RIIO-GD2 business plan we set out our commitment to sustain a resilient workforce to deliver the outcomes our customers desire given the ageing population, emerging skills risks, competition from other infrastructure projects and the change in network requirements and customer expectations.

We recognise the challenges in recruiting and retaining staff in critical technical roles and to address this, we have recruited a Strategic Workforce Planning specialist to identify issues and implement solutions right across the organisation. Our ambition is to enhance the current approach to Strategic Planning with networks to bring greater alignment with the recruitment and training processes, contribute to a refreshed Education and Skills strategy aimed at ensuring we're targeting the right groups with our external outreach programmes to maximise the labour market from which we can recruit, and work with our operational colleagues to understand utilisation and identify areas for better job design and/or cross-skilling. We will also be working to develop requirements for the Hydrogen Academy, and with the wider business to understand how business change going into the next price control will impact the workforce and what interventions can be taken now to ensure our people are best placed to deliver our future objectives.

Providing a quality experience for all our customers, stakeholders & communities

Key performance highlights in 2021/22

"We have transformed the customer experience across our core services. We have achieved this through a focus on minimising the number of, along with the duration of any, unplanned interruptions our customers experience, by minimising the disruption caused in the communities we serve by our works through collaboration with other utilities and by prioritising customers in vulnerable situations through providing additional services based on their specific needs."

Keeping the energy flowing

8 hours
on average to restore supply following unplanned interruptions in non-MOBs

19 days
on average to restore supply following unplanned interruptions in MOBs

Minimising disruption

184
days of disruption saved due to collaborative streetworks

Delivering
further Collaborative streetworks projects to minimise disruption

Setting standards that customers love

9.05/10
Average Customer Satisfaction

84%
complaints resolved in one working day

Above standard
on all Overall Standards of Service

Supporting vulnerable customers

9.2/10
Average Customer Satisfaction for customers registered on the Priority Services Register

3,269
Fuel Poor Connections delivered

£84m
in societal benefits through 39 VCMA projects

Ambition for remainder of RIIO-GD2

We are committed to building on a strong start to RIIO-GD2 and are committed to:

>9/10
CSAT scores maintained

£6.82m
on initiatives next year to support vulnerability & CO awareness

40
further collaborative streetworks projects to minimise disruption

Performance in depth

Providing a quality experience for all our customers, stakeholders & communities continued

Setting standards that all our customers & stakeholders love

Customer service

In 2021/22 we have made transformational improvements in our customer service which is reflected in our excellent customer satisfaction scores in all four networks across the three core processes. Our aggregate CSAT score significantly improved since last year from 8.81 to 9.05. We are particularly proud of our performance in NW and WM and expect these networks to be positioned amongst the leading performers in the sector. Core to these improvements is the embedding of our customer strategy which aims to provide outstanding service levels to all our customers. The introduction of our new contract management and delivery partners has enhanced our operating model and we have seen significant improvements in our customer satisfaction performance measures despite changes to the survey methodology for RIIO-GD2.

Average CSAT scores by network across all surveys

Network	21/22	20/21	Movement from last year
EN	**8.97**	8.83	+0.14
LN	**8.88**	8.70	+0.18]
NW	**9.24**	9.00	+0.24
WM	**9.08**	8.72	+0.36

The following sections detail our performance levels in 2021/22 for the three service lines we measure for customer satisfaction and summarise some of the initiatives we implemented to improve the customer experience.

Emergency Response and Repair (ER&R)

Whilst there was a slight reduction in average ER&R CSAT scores compared to last year (-0.06), we have continued to deliver an excellent service to customers with an average score of 9.45.

ER&R CSAT scores by network (in excess of 600 surveys completed per quarter)

Network	Target score	21/22	20/21	Movement from last year
EN	9.37	**9.50**	9.56	-0.06
LN		**9.29**	9.41	-0.12
NW		**9.55**	9.55	0
WM		**9.46**	9.52	-0.06

EN, NW and WM all performed above the target whilst LN performed slightly below the target of 9.29. Recognising the underperformance early in the year, we took steps to improve performance by embedding and continuously enhancing a real-time feedback and recovery mechanism to help us identify and rectify when we are failing to deliver a good customer service. These improvements have been reflected in the scores, with LN performing above the target in the last two months of the year. This has allowed us to proactively identify areas of lower satisfaction and reach different customer segments to implement a targeted approach in service delivery.

'Make Safe' calls have been introduced across our networks. Our engineers call customers once works have been completed to ensure our customers are fully aware of any work that has been completed and to provide further opportunity to answer any questions customers may have.

The focus on reducing the time a customer is off gas remains a key driver for us with daily calls in place to understand and resolve issues quickly. Our off-gas customers are provided with meal vouchers to help minimise the disruption.

Planned Works

We have delivered significant improvements in service for customers who are impacted by our planned works, a work type that is unexpected and causes disruption in the area. In 2021/22 our average planned work CSAT scores increased by +0.45 compared to the previous year. This is our largest year on year improvement in customer satisfaction over the RIIO periods. Although the regulatory target increased for RIIO-GD2 from 8.09 to 8.51, we stepped up to the challenge by transforming our service with our new partnerships and all four of our networks exceeded the target with our NW network recording the highest scores. In the last year of RIIO-GD1 we had implemented parts of our new delivery model in NW and WM allowing for an easier transition into RIIO-GD2, however we only implemented the model in EN and LN at the start of RIIO-GD2. Therefore, it has taken longer for the new delivery model to embed in these networks and is reflected in lower scores compared to our other networks. Over the latter months, performance has been steadily improving as new teams become established and we are confident performance will continue to improve in both networks over the course of RIIO-GD2.

Planned work CSAT scores by network*

Network	Target score	21/22	20/21	Movement from last year
EN	8.51	**8.65**	8.68	-0.03
LN		**8.61**	8.42	+0.19
NW		**9.11**	8.45	+0.66
WM		**8.96**	8.13	+0.83

* Minimum survey responses (450) exceeded in 15 of the 16 quarters across our four networks. In Q4 WM received 375 returns but across the year average 626 per quarter).

Core to these improvements was our focus on going 'back to basics' and sharing best practices across our networks. Key areas of improvement include:

- Change of customer team structure – our new Local Delivery Partner (LDP) model where Customer Officers sit within their own structure, along with the Purge & Relight activity, is delivering a better end-to-end outcome.
- Adherence to a final site check – we have held monthly training sessions with our Customer Liaison Officer (CLO) community to show and share best practice. The CLO's now walk across every closing scheme each month and knock on every door where the service has been interrupted to hold a final conversation with customers. We summarise our works, provide any assurances that may be needed (i.e. reinstatement quality guarantee), leave a positive lasting impression with and most importantly identify a 'snagging list' of any outstanding issues that LDPs may have missed and need to be rectified such as dirty drives and public areas, damaged meter boxes or internal fixtures and so on.
- Investing in site tidy and site pride – we've provided streetcleaners to keep sites clean so that wherever possible we leave a better impression than when we started. This is coupled with insistence on LDPs brushing sites daily, to complement the street clean.
- Sharing of MI and performance data – we've conducted weekly and monthly formal review and feedback sessions with each LDP to ensure any customer issues are quickly rectified, and shared customer satisfaction league tables for our partners. We've also provided regular team praise through weekly customer accolades to support and embed positive behaviours.
- Effective communication to customers prior to work beginning, keeping them better informed and setting expectations.

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 2021/22 we delivered 17,328 connections; a 12% decrease compared to 2020/21

As part of raising the bar for RIIO-GD2, the connections regulatory target increased from 8.04 to 8.38 and we changed from a postal survey to email and telephone interviews. The results of our previous trial and other studies carried out by market research companies (e.g. TTI Global) in the automotive sector and for various UK Police forces suggested that changing from a postal survey to a telephone survey could result in lower satisfaction scores. However, through implementing initiatives to improve the customer experience, we were able to mitigate this channel bias and significantly improve customer satisfaction in our connections service, shown by increased scores in all four of our networks by an average of +0.37 compared to the previous year with all four networks performing above the sector target.

Connections CSAT scores by network (based upon surveying 100% of customers)

Network	Target score	21/22	20/21	Movement from last year
EN	8.38	**8.76**	8.25	+0.51
LN		**8.73**	8.28	+0.45
NW		**9.05**	9.01	+0.04
WM		**8.82**	8.50	+0.32

The performance in our NW network was most noteworthy with customers scoring us 9.05 on average. Our WM network also made significant improvements in performance compared to the previous year. Whilst scores in our EN and LN were lower, performance was above the regulatory target and both networks improved significantly compared to last year.

The improved CSAT scores are driven by our continued focus in listening to customer feedback and implementing positive, customer driven changes. The following activities have all had a positive impact on our customers' end to end connections journey:

- New literature has been developed to better inform our customers of what to expect throughout the process.
- Lead times have been reduced by removing unnecessary handoffs enabling us to provide faster planned dates to customers.
- 'Lasting Impression Calls' take place after works are completed. Every customer is contacted to ensure they are satisfied with the work, to answer any questions they may have or to resolve issues promptly..
- Single points of contact for customers to get in touch with the right people, whenever they need.

Providing a quality experience for all our customers, stakeholders & communities continued

Connections Guaranteed Standards of Performance (GSOP)

Minimum standards for our connections delivery service are measured via Guaranteed Standards of Performance (GSOP). 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 (as per Standard Special Condition D10: Quality of service standards). For RIIO-GD2 some standards were changed to reflect changes in customer expectations and the scope widened to include additional customer segments (e.g. customers receiving diversions). Despite this, in 2021/22 we exceeded the 90% standard for all GSOP across all our networks shown in the table below:

GSOP performance against 90% standards

GSOP	EN	LN	NW	WM
GSOP 4: Provision of standard quotation	●	●	●	●
GSOP 5: Provision of non-standard quotation (≤275 kWh per hour)	●	●	●	●
GSOP 6: Provision of non-standard quotation (>275 kWh per hour)	●	●	●	●
GSOP 8: Response to land enquiries	●	●	●	●
GSOP 9/10: Provision of a date for starting and finishing work	●	●	●	●
GSOP 11: Completing work in the agreed timescales	●	●	●	●

Complaints handling

Across all of our networks we have outperformed the complaints metric target of 5 achieving an average score of 1.78. Our D+1 resolution performance has also increased on average.

2021/22 Complaints handling performance

Network	D+1 resolution	Complaint metric score
EN	79.04%	2.10
LN	85.71%	1.67
NW	89.06%	1.41
WM	85.56%	1.65

Our strong performance was driven by continued focus on empowering local teams to resolve complaints directly by using their knowledge and taking ownership to swiftly resolve complaints to the satisfaction of the customer. We continue to use learning from the processes put in place in the previous year for lessons learnt from complaints and sentiment analysis to make targeted improvements.

Keeping the energy flowing

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.

For RIIO-GD2, Ofgem introduced the Unplanned Interruptions financial incentive to protect consumers by ensuring that they do not experience extended periods without gas following an unplanned interruption and networks are encouraged to restore supply as soon as possible. It was recognised that in our networks we have a large proportion of multi-occupancy buildings (MOBs), particularly in London. Therefore, two separate measures were set, one measuring the average duration of unplanned interruptions in MOBs and another measuring the same for all other buildings (i.e. non-MOBs).

Two performance levels were set for unplanned interruptions average duration:

- Minimum performance level – Based on the highest annual average duration recorded in the first six years of RIIO-GD1
- Excessive Deterioration level – Set at 5 hours beyond the minimum performance level for non-MOBs and 200 hours beyond the minimum performance level for MOBs

Unplanned interruptions in non-MOBs performance

We run an extremely reliable network, with less than 1% of gas consumers experiencing any disruption to their supply in 2021/22. Our customers expect gas to be there when they need it, however, in some instances an unexpected unplanned interruption can occur, and customers expect us to respond quickly to restore their supply.

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 an interruption. This has been underpinned by using innovative techniques such as live service transfers and ServiBoost. These techniques have enabled us to keep gas flowing for our customers whilst a repair is carried out.

In 2021/22, all our networks performed better than the minimum and excessive deterioration performance levels and in most cases significantly better.

Non-MOBs Unplanned Interruptions average duration (hours)

Network	Minimum performance level	Excessive deterioration level	2021/22 actual performance
EN	12	17	5
LN	14	19	12
NW	14	19	8
WM	13	18	8

Unplanned interruptions in MOBs

Most unplanned interruptions occur in single occupancy properties and restoring supply follows a consistent and controllable process. However, restoration of supply following unplanned interruptions which occur in MOBs 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, we have proactively engaged with building owners, tenant management organisations and local authorities to develop building plans which will allow us to reduce delays and disruption when an unplanned interruption occurs in a MOB and ensure we can restore supply as efficiently as possible (see section on High rise building plans). This coupled with the increased use of innovative techniques where we minimise the interruption to supply is having a positive impact on performance.

In 2021/22, all our networks performed better than the minimum and excessive deterioration performance levels shown in the table below:

MOBs Unplanned Interruptions average duration (hours)

Network	Minimum performance level	Excessive deterioration level	2021/22 actual performance
EN	518	718	389
LN	601	801	583
NW	601	801	55
WM	601	801	331

Major incidents

In 2021/22 we experienced two major incidents (more than 250 customer interrupted), one in WM and another in NW. The first was in Tattenhall, Chester in the NW. The cause of the incident was an issue with the governor that regulates pressure to Tattenhall, and nearby villages. The second incident took place in Rubery and Rednal areas of Birmingham in West Midlands. A burst Severn Trent water main damaged our gas main, interrupting supplies and flooding the local gas network with around 100,000 litres of water.

OBs Unplanned Interruptions average duration (hours)]

Name of major incident	Network	Cause	No. of customers interrupted
Rubery, Birmingham	WM	Water ingress in gas main	648
Tattenhall, Chester	NW	Pressure issues with local governor	860

Providing a quality experience for all our customers, stakeholders & communities continued

Major incident – Tattenhall

As an emergency service, we are committed to keeping our customers safe and warm. We see that through our teams' daily interactions with our customers, and particularly in response to major gas incidents.

An example of this was in Cheshire last year, when an issue with a governor at Eccleston Ferry Off-take caused supply issues in Tattenhall. The Cadent team rallied with resources arriving at site and quickly identifying that more than 1,300 properties could be impacted. This included the entirety of Tattenhall, as well as several smaller surrounding villages.

Our Operate and Maintain team worked on fixing the issue within 24 hours. However, we still had to follow due process to visit every property to isolate supply, purge the network, and then return to every property to switch gas back on again and safety-check all appliances.

This happened from Sunday through to Friday, with an incident 'bronze' command unit set up at Barbour Institute (Tattenhall's Village Hall) and 'silver' command working from Ellesmere Port depot. Teams from across the business supported too, as well as our North West CMO, Network Plus.

We set ourselves a target to have everyone back on gas by the end of the Wednesday – and we had made a visit to every property to do just that. The only properties we were restoring gas to on the Thursday and Friday were those who were not home when we initially visited.

The comments we received, face-to-face, by email, and on social media, showed this didn't go unnoticed by our customers and our teams were overwhelmed by the response. Messages posted on social media pages included:

"Every member of Cadent staff I have spoken to has been helpful and polite. Their exercise in customer service is something I have rarely seen."

Jenny Moten, our North West Network Director, added: "I set the team a goal early in this incident to make sure we left a lasting impression. They rose massively to that – in general, just being so kind and thoughtful to customers impacted, but also by going the extra mile, like arranging for £10 meal vouchers at four local restaurants and cafes. We will take a lot of learning, as ever, from this incident – and we should also take a lot of pride from a job well done."

"Thank you all very much for being so kind to me when I came round. You all are a credit to your firm."

Minimising disruption

Collaborative streetworks

Following extensive engagement with our customers and stakeholders, in our business plan we proposed to set an incentive that encourages collaboration of streetworks between utilities and local authorities to minimise disruption. As a result, the collaborative streetworks financial incentive was introduced for RIIO-GD2 for London-based networks. We have had a very strong year of performance and delivered 10 projects between our London and Eastern networks reducing disruption in total by 184 days.

Working with key stakeholders within the industry we have developed and implemented a model which drives collaboration benefiting both road users and customers living in the area. Our approach is based on the principle of collaborating on all and any works do maximise the value to our customers. Sometimes proposed projects do not lead to collaboration as other utilities or authorities may not agree to collaborate, however, we still benefit from learning that supports us in developing other opportunities.

In recognition of the projects we have completed we received a letter from the Mayor of London congratulating us on the hard work to deliver these collaborative jobs.

"On behalf of all Londoners, thank you for all the efforts you undertake with your team to promote collaborative streetworks projects and reduce disruption."

Sadiq Khan,
Mayor of London

Collaboration in our London network

Within LN alone and adopting an "open to collaborate" model with all parties, we have delivered 50 projects resulting in over 400 days saved, providing huge benefits to councils, utilities and our stakeholders. Of these projects, eight qualified for the incentive with 166 days saved. During the course of identifying viable projects for collaboration we have developed strong working relationships with other parties and have also worked across industry sectors to demonstrate the benefits of collaboration to highlight that these extend beyond reducing disruption and include environmental, economical and social benefits. With the inception of the **HAUC UK Collaboration Toolkit** we are confident that we can achieve more positive collaboration within the network and use the model as an opportunity to help develop other utilities' and local authorities' collaboration processes.

In delivering collaborative projects we have encountered a number of areas where the Construction Design and Management (CDM) regulations were not clear and we have taken steps to remedy this to ensure that we are compliant. For instance, in the case of the Tennyson Road project we developed and implemented new "site take over" forms which helped us to identify the hazards and control measures in place to mitigate risk. We are hoping to explore this further and develop a suite of CDM documents that cover a large variety of work types and situations to ensure we remain compliant and working to a safe standard with third parties.

2021/22 Collaboration projects delivered in LN

Project name	Collaborative partners	Number of days saved
Tennyson Road	Affinity Water	5
Shepherd's Bush Road*	Thames Water and G network	24
Rosecroft Road	Ealing Council	32
East Sheen Avenue	Thames Water	18
Beehive Avenue/Eastern Avenue	Thames Water	22
First Avenue/Second Avenue	London Borough of Richmond Upon Thames	6
Belgrave Square	Thames Water and G network	52
Knightsbridge	Thames Water	7
		166

* Shepherds Bush Road did not qualify against Ofgems criteria of a Collaborative Streetworks Project' as the length of collaboration was below 200 metres. However, the Greater London Authority (GLA) validated the project as meeting its criteria of 'Strategic Importance.

Providing a quality experience for all our customers, stakeholders & communities continued

Collaboration in our Eastern network

The collaborative streetworks incentive only applies to the London area of our Eastern network, therefore the opportunity for delivering incentive-applicable projects is significantly more limited compared to our London network. However, we have delivered two key projects which saved 18 days of reduced disruption. Over the course of the remaining iron mains replacement programme, we have a relatively large amount of work to replace in the borough of Enfield. We utilised the benefits of collaboration to improve our relationship with the highway authority to deliver both our future mains replacement outputs and ensure we're collaborating to minimise the impact on customers.

2021/22 Collaboration projects delivered in EN

Project name	Collaborative partners	Number of days saved
Park Lane	Enfield Council	9
Carterhatch Lane	Enfield Council	9
		18

Park Lane

During the course of the work at Park Lane we ensured our community and customers remained at the heart of what we were doing. We collaborated with Enfield council to undertake a joint consultation with the residents in the area to ensure that our works delivered to their expectations. We also engaged with the local school, Hazelbury Primary, to explain the importance of our works in improving the resilience and safety of the network and provided education on carbon monoxide awareness to over 400 students.

The project was an iterative process for both us and the local authority. With support from the GLA we developed a collaboration plan in line with CDM requirements. As the project progressed, we identified additional aspects of collaboration such as utilising our contractor's plant to move shared spoil which delivered a cost, productivity, and an environmental efficiency that we had not originally foreseen.

Carterhatch Lane

Carterhatch Lane is a historic scheme that we have traditionally struggled to complete due to its location and the engineering challenges on this arterial route. Utilising specialist technology, we came to a mutual proposal with the Highway Authority that significantly reduced the time that would have been spent on these works and we were able to minimise the disruption to customers.

The original scope required us to undertake 2 weeks of excavations alone. However, working with the Highway Authority we shared a Temporary Traffic Regulation Order (TTRO), permit and backfill and reinstatement responsibilities. This is a scheme the GLA have shared as a great success which all feeds into the greater London collaboration knowledge base.

Monitoring and evaluation

We have been working with the Greater London Authority (GLA) and other sector stakeholders, to develop the Monitoring & Evaluation (M&E) tool which is a common and evidence-based tool for use by all utilities to measure the impact of collaboration. This tool has created a simplified and enhanced data view, that can show a consistent approach to calculating days saved as well as other benefits per project. Early indications show that actual benefits are much higher than the original schemes that were used to base the incentive and is therefore under-valuing the benefit to customers. This is something we think that should be reviewed and looked at as new incentive schemes develops across the wider industry.

We have made a step change in working practices and in the delivery of collaborative projects and the numbers of days of disruption saved for our customers in-line with our plan. Our plans for the next year are moving along at pace, with further development with our utility and council colleagues in flight, and we are hoping that with the support from Transport for London, The Greater London Authority and the DFT, we will see more positive steps forward in ensuring collaboration is embedded for the rest of this price control and the next price control.

Supporting customers in vulnerable situations

In our RIIO-GD2 business plan we set out ambitious commitments to support customers in vulnerable situations, recognising that vulnerability is increasing due to various factors including the rise in how long we all live, the advancement in technology leaving many behind, and the evolution of the energy system as we move towards net zero.

Since then, many other factors have led to a rapid rise in vulnerability, including the COVID pandemic, soaring energy prices, the cost-of-living crisis and other socio-economic factors. We have been flexible to these changing needs to ensure we are supporting those who need it most.

Our business purpose is to 'keep people warm while protecting the planet'. We believe that all our employees and strategic partners play an important role in helping us deliver our purpose and a core part of that is supporting customers in vulnerable situations. This means helping to keep all our customers safe and warm and enabling them to be independent in their homes no matter their personal circumstances.

Through our vulnerability strategy we have developed a suite of commitments in four key priority areas which are listed below.

In the next sections we explain how we have progressed against these priority areas including performance against reputational targets set by Ofgem in the Final Determinations.

Tackling fuel poverty

We focus on whole home interventions tailored to the needs of each household, to provide practical and long-lasting affordability assistance to help customers living in fuel poverty.

Carbon monoxide awareness

We continue to raise awareness of the dangers through several innovative programmes, and intervene to reduce the risks from this colourless, odourless toxic gas that can escape from poorly maintained flues and appliances.

Going beyond the meter to never leave a customer vulnerable without gas

We continue to explore how we go beyond the minimum standards of service and work with a range of partners to ensure we never leave a customer vulnerable without gas.

Identifying individual needs and joining up services

We have a responsibility to ensure that the needs of our customers are understood and acted upon in a respectful and relevant way. We must find effective ways to identify our customers' needs and understand the many situations that can lead to vulnerability across the communities we serve.

Providing a quality experience for all our customers, stakeholders & communities continued

Tackling fuel poverty

The scale of fuel poverty in the UK means it is impossible for a single organisation to tackle this alone. Our approach has been to work with a number of specialist external organisations to consider ways in which we can maximise the impact we can have, especially where alternative funding arrangements do not exist.

We have committed £2.1 million of the individual and collaborative Vulnerability and Carbon Monoxide Allowance (VCMA) to:

- provide over 11,000 customers with free energy and income advice and debt consolidation services,
- establish fixed Centres for Warmth and mobile Warm Hubs as bases to bring local communities together to provide energy efficiency and income maximisation support, including cooking demonstrations on how to use energy efficient slow cookers; and
- allow us to continue to work closely with our partners National Energy Action (NEA), and Auriga as well as establishing new relationships with local partners.

As well as utilising the VCMA to support customers in fuel poverty, we also continued to provide essential support to a large number of households through the Fuel Poor Network Extension Scheme (FPNES). In 2021/22 we delivered 3,269 Fuel Poor Connections, substantially outperforming our forecast of 1,250, and delivering more than 50% of the five-year period target of 6,250.

As per the FPNES governance document, each household receiving a connection was supported to assess available heating options and confirm mains gas as the best solution. Despite there being many more alternative heating sources (air source heat pumps etc) in comparison to previous years, the majority of customer assessments found that a gas connection was the most suitable. There were of course other customers assessed where a gas connection may not have been seen as the most suitable and these customers were directed appropriately.

Although we mirrored our historic split of fuel poor connection delivery methods in 2021/22 (One-Off Connections and Community Schemes), the business expanded its number of Fuel Poor Partner Organisations. We utilised partnerships with Affordable Warmth Solutions and YES Energy Solutions to offer choice and ensure maximum coverage across our network in terms of customer relationships with local authorities, social housing, and park home sites. Of the total number of Fuel Poor Connections delivered, 149 connections were delivered through third parties conducting a mains extension to our network, 1,287 through community schemes and 1,833 through one off connections extending a gas service pipe from our existing network.

With our principal fuel poor delivery partner we've implemented the below strategies to ensure maximum support for fuel poor households in 2021/22:

- Changes in Government Policy (ECO): with the Government announcement on changes to ECO where support for new first time gas central heating systems would be withdrawn, we saw an increase in demand to install connections and heating prior to the cut-off date of June 2022.
- Connected for Warmth Initiative, supported by Cadent Foundation: this highly successful AWS initiative came to a conclusion at the end of March 2022 and brought together funding from several sources and helped facilitate the installation of new first time gas heating systems.
- Partnership working: through the Warm Homes Fund, we broadened the programme of support to Blackpool Council to include Park Home initiatives throughout the North West, this has seen an increase in demand for new gas connections previously not forecast.

We recognise that a number of customers may qualify for support under the FPNES without realising and make a full payment for a gas connection. Through improving our communication on the support offered through FPNES on our website and other channels we have seen a significant reduction in refunds from 254 in the previous year to only 25 this year.

Although there is more help to offer through FPNES and VCMA, we are proud of the level of support that we have been able to offer to over 3,000 households, particularly with the current national landscape of COVID recovery, rises in the cost of living, and an ongoing energy crisis. It is worth noting that the introduction of ECO4 from 1st July 2022 will present challenges to FPNES delivery, as customers previously utilised ECO3 funding to demonstrate their intention to install gas fuelled appliances. However, we are committed to supporting as many off-grid households as possible through the scheme until it receives further direction from Ofgem.

2021/22 FPNES connections delivered vs. annual targets and cap

Network	FPNES connections delivered	Target	% Delivered vs. target	Cap	% Delivered vs. cap
EN	1,220	2,050	59.5%	7,525	16.2%
LN	464	500	92.8%	2,500	18.6%
NW	837	2,250	37.2%	11,250	7.4%
WM	748	1,450	51.6%	10,450	7.2%
Cadent	**3,269**	**6,250**	**52.3%**	**31,725**	**10.3%**

Carbon monoxide awareness

Our performance in the first year of RIIO-GD2 in raising awareness of carbon monoxide (CO) has been strong. We have continued to grow several successful projects from RIIO-GD1 following feedback from our stakeholder and funded additional projects through the Vulnerability and Carbon Monoxide Allowance (VCMA). Highlights for year one include:

- Working in partnership with The Katie Haines Memorial Trust and Bonanza Creative, we've created a new package to be used in school assemblies. The package is aimed at primary school pupils between the ages of 5 and 11, uses key learning points and builds on learning from our existing school packages, including Safety Seymour and The CO Crew to raise awareness on the dangers of CO to this target audience. In the last quarter of the year, we saw over 4,000 primary school pupils educated via the use of this assembly initiative and the project has received positive feedback and allows us to reach a large number of children at once. This package along with our established education packages will help us achieve our business commitment of educating 200,000 pupils during RIIO-GD2.
- We've continued to lead the industry in raising awareness of the dangers of CO initially across our network and then across the UK. We worked with S3 Advertising to deliver our CO summer and winter CO awareness campaign projects. They estimated that we reached over 9 million customers, through a range of communication channels. Working with Sia Partners, we calculated that approximately 277,000 of these customers would take positive action to reduce their risk of hard from CO as a result of the campaign.
- During this year we have launched our Centres for Warmth. This initiative uses community centres in key CO and deprivation hot spot areas to allow us to support communities and customers living in vulnerable situations by promoting our safeguarding services, providing CO education and distributing CO alarms. Working with community centres in these locations ensures that we reach customers that need help the most and enables us to reach customers outside of our day to day activities.

CO awareness reach

Network	No. of customers reached through CO awareness
EN	247021
LN	138985
NW	167,241
WM	125550
Cadent	**678,797**

We continue to measure CO awareness through a common survey which is completed on emergency jobs by our first call operatives as well as through our various partnerships. The survey captures evidence of conversations on CO with our customers and allows us to demonstrate the pre and post CO knowledge. Of the c.68,000 customers that have been surveyed in the first year of RIIO-GD2, we have seen an average increase in knowledge of 1.8 points (out of 10). We have set a target of achieving a 2-point improvement which we are on track to achieve by the end of RIIO-GD2.

Our focus for 2022/23 is to continue to drive awareness of CO across networks with a focus on customers living in vulnerable situations in areas of deprivation. We will continue our education packages, working with FRS as well as forging new partnerships. We are also growing our summer and winter campaigns as they enable us to reach more customers and target a specific demographics.

CO awareness scores

	EN	LN	NW	WM	Cadent
Avg. Score Before	7.33	7.24	6.88	7.08	**7.13**
Avg. Score After	8.98	8.98	8.76	9.11	**8.96**
Avg. Score Diff	1.65	1.74	1.88	2.03	**1.83**

Providing a quality experience for all our customers, stakeholders & communities continued

Going beyond the meter to never leave a customer vulnerable without gas

This year we have launched several initiatives to help customers with services that go beyond the meter, and beyond our regulatory obligations.

We have established a simple referral system, where any of our employees or our service delivery partners can refer a customer (with their permission) to a central team of experts (currently supported through a contract with National Energy Action). This central team will work with customers to understand their needs and oversee a tailored course of action to help them. This could be a funded gas appliance repair or replacement, an appliance service or providing energy and income advice, linked to our focus on affordability and fuel poverty. Over the course of the year 906 customers have been referred through this route. We are upskilling our workforce to work downstream of the gas meter in customers' homes, allowing us to undertake various activities on customers gas appliances to keep our customers connected.

Many of our customers experience various forms of vulnerability including fuel poverty. The process of arranging much needed repair to faulty gas appliances can be daunting and expensive. Our services beyond the meter project allows us to utilise our unique role of entering households to identify different types of vulnerability and work with customers to provide them with much needed additional services.

The VCMA has allowed us to provide training, equipment and resources to our direct field force, upskilling engineers to be able to investigate suspected CO problems following an initial emergency response to a suspected CO report. Until we launched this project, if we identified a suspected CO issue at a customer's property, we would isolate the appliance (making it safe) and ask the customer to make their own arrangements to have it fixed or replaced. We now facilitate this whole process for customers who are unable to do this, including if they cannot afford to pay for the additional work. Our investigation response time of 17 hours (on average) is an essential lifeline to our customers.

Identifying individual needs and joining up services

There are around 3.9 million customers living in our network who are registered on the Priority Services Register (PSR). The PSR is a way that we can help those who have extra communication, access or safety needs to gain equal access to the best possible service at all times.

Over the course of this year, we have had over 43,000 face-to-face conversations with customers to inform them of the PSR. Through our collaborative winter campaign which targeted PSR awareness, we estimate we have reached around half of our customers and we've seen the number of registrations increase as a result.

We recognise the importance of raising awareness of our key safeguarding services and how customers can register on the PSR. This helps us to identify the reasons behind customers' vulnerabilities and take action to support them when delivering key services.

To provide an inclusive service for all, we must consider that not all customers know who we are. This is why we developed our awareness literature with leading market research agencies to maximise the likelihood that material will be read and messages understood. We created a 'one stop shop' guide for customers

to easily gain awareness on services they may benefit from. We distributed the booklets during the colder months, supporting customers through the often-challenging winter period.

Over 345,000 households across our networks were included, targeting areas based on data indicating they faced the highest rates of customer vulnerability and deprivation.

The booklet focused on our safeguarding services and how we can help our customers:

- to stay warm
- recognise the presence of CO
- enable their independent living
- secure a discounted gas connection and
- how to sign up for the Priority Service Register

A significant increase in PSR registrations was seen directly after the booklet was sent to customers' homes.

Our works can have a significant impact on the lives of our customers, especially customers in vulnerable situations. Therefore, we ensure customers registered on the PSR are prioritised and engaged with so that we can understand and meet their needs during what can be a disruptive experience. Services can include proactive communication of planned works, provision of alternative services based on their specific needs, quicker restoration of supply, meeting accessibility needs and prioritised completion of reinstatement and site tidy works. Our high CSAT scores from customers registered on the PSR demonstrate our continued focus on supporting customers who need it most:

PSR CSAT scores

	Planned works	ER&R	Connections
EN	9.05	9.53	8.86
LN	8.98	9.38	9.10
NW	9.33	9.57	9.13
WM	9.19	9.51	8.82

Performance in depth

Providing a quality experience for all our customers, stakeholders & communities continued

Vulnerability and Carbon Monoxide Allowance (VCMA)

The introduction of the Vulnerability and Carbon Monoxide Allowance (VCMA) has enabled us to grow and improve several successful projects from RIIO-GD1 into this new regulatory period as well as introduce a large number of new initiatives. All projects are in line with our customer vulnerability strategy and are compliant with Ofgem's VCMA governance document. Our projects offer support through a range of innovative approaches for customers living in vulnerable situations as well as raising awareness of dangers of carbon monoxide.

Of the internal allocated spend for the first year of RIIO-GD2, we have committed in the region of £7 million to a range of projects which will deliver outcomes throughout this regulatory period and a positive social return on investment. The actual spend of £2.1 million is lower than forecast due to the start-up nature of several projects largely due to the time taken to form new partnerships and associated due diligence. The partnerships formed this year will allow a greater ability to mobilise projects and spend over the remaining period of the price control. We have spent an additional £0.78 million on collaborative projects of which we have led.

We have forecasted an increase in our spend for year two to circa £5.7 million to maintain our existing projects and create new partnerships to further support our customers living in vulnerable situations.

Further information relating to the projects we have delivered in year one can be found in our **VCMA annual report for 2021/22** (see appendix 4 for further details).

Personalising Welfare Facilities

As identified through our enhanced engagement programme during the RIIO-GD2 business planning process, customers and expert stakeholders provided strong support for us to provide enhanced 'personalised welfare' to support customers where their gas supply has been temporarily isolated. The provision of additional funding allows us to provide this to customers in vulnerable situations, regardless of whether they are registered on the PSR, as well as providing a wider range of welfare offerings than is specified under GSOP3.

We knew that it would take time to design the business processes, establish the necessary supply chain links, train employees and ultimately roll this out across our four networks. This represents a significant change to the business and for customers and therefore we designed an implementation project with multiple stages, including various trials that were led in the different networks.

In the first year of RIIO-GD2, through this approach, we have created the building blocks across process, behaviours and systems - which are allowing us to maintain consistency and accuracy, not only in our delivery but also in how we record data and report on performance.

A big focus for year one has been in establishing a robust business understanding of the problem we are aiming to solve and in training our front line employees to deliver the service. At the same time we have developed recording and decision tools, as well as identifying, testing and purchasing provisions that we have been offering to customers.

Due to this foundational work of embedding processes and knowledge, as expected year one delivery has been significantly lower than we are forecasting for subsequent years. It should also be noted that issuing personalised provisions to people in vulnerable situations can only be done if the opportunity arises and if the customer is happy to accept our offer of interventions, which some do not.

Across the year we have seen the introduction of a number of new provisions but the one that has been rolled out to the greatest extent has been the provision of hot meals. At the start of year, we ran an initial pilot in our London network which was based on a singular food outlet (Just Eat) but resulted in the creation of a process that was then extended across all four networks. The pilot helped us understand the most efficient process in meeting the needs of customers in vulnerable situations and supported the development of a flexible and systemised approach for the provision of a range of food vouchers. Through the development of the Dine On Us App, we now have a robust method to offer households a standard value of voucher to suit their preference(s), geographic options available and without dietary restrictions (see appendix 4 for further details).

Looking forward into the remaining regulatory period we believe that we will see a significant increase in personalised welfare provision issued as we leverage the new processes and service offerings that we have established in year one.

Number of personalised welfare facilities provided

	EN	LN	NW	WM	**Cadent**
PSR customers	1,887	586	877	183	**3,533**
Non-PSR customers	554	1,932	135	259	**2,880**

Tackling Climate Change and improving the environment

Key performance highlights in 2021/22

"We continue to improve our impact on the environment through reducing our emissions and carbon footprint. We are also leading the industry in facilitating the path to net zero through delivery of major Hydrogen initiatives and shaping the future of regulation."

Reducing our emissions

3% reduction in our shrinkage emissions equivalent to gas usage in c.2,750 homes

3% reduction in our scope 1 & 2 business carbon footprint (exc. shrinkage)

54% of our suppliers are now using the Action Sustainability Tool for Scope 3 emissions reporting

30 zero-emission vehicles purchased

30 EV charging points installed

Road to Zero Company Car Scheme introduced

Leading the energy transition

HyNet awarded track 1 cluster funding, to progress the 1st hydrogen industrial cluster in the UK

Hydrogen Village demonstration of Hydrogen in homes through launch

HyDeploy1 successfully blended up to 20% hydrogen into a network

Ambition for remainder of RIIO-GD2

We are committed to building on a strong start to RIIO-GD2 and are committed to:

Progress our regional development activities with the East Coast Hydrogen and Capital Hydrogen projects and launch Hydrogen Valley

Deliver Hydrogen Village stage 2 in preparation for future stages

Focus on driving a reduction in our Gas and Electricity Consumption (scope 1 & 2)

Tackling Climate Change and improving the environment continued

Decarbonising our business operations

We recognise our responsibility to support the UK to meet its greenhouse gas emissions (GHG) target and have committed to medium and long-term targets.

In 2021/22, the majority of carbon dioxide equivalent GHG emitted by our business is from shrinkage, which is the escape of methane from our gas networks. However, like others, we are also responsible for emissions as a result of our day-to-day activities, including how we invest in our fleet, the materials we and our supply chain use, and our energy consumption.

Environmental Emissions and Shrinkage

Shrinkage is gas that leaves our network without passing through a meter. 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), gas that is used for our operational purposes, for example, preheating gas prior to pressure reduction (own use gas) and gas that is stolen upstream of the meter (theft of gas).

Leakage is the largest contributing factor of greenhouse gas emissions from the gas transportation network. The leakage of natural gas therefore contributes to global warming. Shrinkage gas also contributes to customers' bills and so our continued drive to decrease the environmental impact of shrinkage also delivers customer savings.

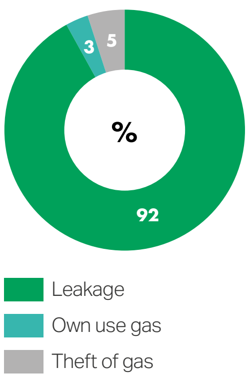
To estimate leakage from our gas distribution system we use an Ofgem approved methodology and model. The model is continually reviewed with a view to enhancing calculation methods and improving the accuracy of the leakage assessment. It includes an assessment of emissions from mains, services and above ground assets in addition to 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.

We have demonstrated commitment to improving the accuracy of the Shrinkage and Leakage calculations, and unlocking new technologies to better understand our emissions, by leading a Strategic Innovation Fund discovery phase project (Digital Platform for Leakage Analytics) in conjunction with National Grid and SGN. The discovery phase reviewed and assessed different real-time technology solutions and we have applied to progress this project to Alpha stage. This project, if successful, could lead to widespread changes in the methods of emissions calculation in the UK, and replace or supplement the existing Shrinkage and Leakage Model. We are pleased to confirm that as part of the Alpha stage application Wales & West Utilities (WWU) and Northern Gas Networks (NGN) have requested to be partners on the project, meaning all UK Distribution Networks and Gas Transmission are involved.

In 2021/22 we continued our pressure management optimisation strategy, and although we did see some minor increases in system pressures compared to 2020/21 our performance is still strong. The increase in pressure compared to 2020/21 levels contributed to an increase of 1.5GWh in annual Leakage. We will continue to operate our networks at the levels required so that customer receives appropriate gas pressures to operate appliances, whilst maximising environmental emissions benefits.

The chart below shows the split between leakage, theft of gas and own use gas categories in 2021/22. We expect the leakage proportion to continue to decrease year on year as a result of gas mains replacement activity. Own use gas and theft of gas are calculated as a factor of throughput and so will vary according to demand.

Shrinkage Breakdown 2021/22



Performance in 2021/22

A summary of the 2021/22 Shrinkage volume performance against the prior year is shown in the table below. Across our four networks shrinkage gas losses were reduced by 32.0GWh (2.9%). Based on an assumed typical annual consumption of 12,500 kWh, this reduction is equivalent to the gas usage of approximately 2,750 domestic houses. Reductions were achieved in all of our four networks as shown in the table below.

Mains Replacement Programme (including Service Relays and Transfers)

We continue to see the biggest reduction in our year on year emissions coming from the delivery of the mains replacement programme which replaces ageing metallic pipes with polyethylene. This contributed 37.1GWh of the overall performance.

Average System Pressure

A year on year comparison of our pressure performance in our four networks is shown in the table below.

We experienced higher average system pressures in 2021/22 when compared with 2020/21 and this contributed a 1.5 GWh increase in shrinkage.

The regulatory incentive framework in RIIO-GD2 accounts for the exogenous factors that could impact Distribution Network system pressures and incorporates an average system pressure calculation for the whole of the period, with an asymmetrical deadband (+0.6/-0.3 offset to baseline pressures) that protects Distribution Network operators from increases due to uncontrollable factors, but also requires a step change improvement before reward is issued. The Pressure Impact Volume (PIV) and the associated reward position for each of our networks is shown in the table below. PIV is zero whenever a network is operating between the deadband parameters.

Since the start of RIIO-GD1 we have taken a proactive approach to optimising pressures to manage leakage, we introduced and continued to refine bespoke operating strategies for 121 of our most environmentally impacting networks, the system pressure performance of these was monitored regularly through positive engagement between our network aligned network analysts and local operational teams. At the start of RIIO-GD1 we introduced a monthly environmental forum with senior management sponsorship that helped to drive continued improvement and we invested heavily in profiling equipment and improving the software used to manage it. Alongside this a technical forum was established to share best practice across operational areas.

We continued work in 2021/22 monitoring system pressures on a monthly basis in environmental focused internal forums and continued to utilise our pressure management systems, however there is a limit in what improvements can be made because customers must receive gas at an appropriate pressure to operate their appliances.

As a network operator we are influenced by factors outside of our control, for example adverse weather conditions could impact customer usage profiles and have a detrimental impact on system pressures.

We also continue to use mains insertion techniques as our replacement technique of choice, this minimises disruption to customers but does exacerbate pressure impacts in cold weather due to loss of capacity in the network.

Throughout RIIO-GD2 we have projected our average performance in system pressures to be flat and doesn't account for exogenous factors that could have a significant impact on our operations, however the global volatility in gas prices could result in a change in usage volumes which gives an uncertain view of future years performance.

Average system pressure	**EN**	**LN**	**NW**	**WM**
2021/22 Average system pressure (mBar)	29.6	26.3	26.8	26.8
2020/21 Average system pressure (mBar)	29.5	25.9	27.0	26.7
Increase / (decrease)	0.1	0.4	(0.2)	0.1

Pressure impact volume	**EN**	**LN**	**NW**	**WM**
2021/22 Pressure impact volume (PIV)	0.0 GWh	0.0 GWh	(3.7) GWh	0.0 GWh
Performance outturn	Neutral	Neutral	Incentive	Neutral

Overall Shrinkage performance in 2021/22

2021/22 performance	**EN**	**LN**	**NW**	**WM**	**Cadent**
2020/21 Shrinkage outturn (gwh)	**392.2**	**199.7**	**278.3**	**250.7**	**1121.0**
LP / MP mains replacement	(9.7)	(4.5)	(7.6)	(4.5)	(26.4)
Service relays	(2.9)	(2.6)	(3.2)	(2.0)	(10.7)
Average system pressure	0.7	1.8	(1.5)	0.5	1.5
Monoethylene glycol saturation	0.1	1.2	0.6	(0.4)	1.6
Interference damages	0.4	0.1	0.1	(0.0)	0.6
Own use gas	0.0	(0.0)	(0.2)	(0.1)	(0.2)
Theft of gas	0.1	(0.0)	(0.3)	(0.1)	(0.4)
AGI asset numbers	0.2	(0.1)	0.0	0.0	0.1
2021/22 shrinkage outturn (GWh)	**380.7**	**195.0**	**268.3**	**244.9**	**1088.9**
Year on year reduction (GWh)	**(11.5)**	**(4.7)**	**(10.0)**	**(5.8)**	**(32.0)**
% reduction	**-2.9%**	**-2.4%**	**-3.6%**	**-2.3%**	**-2.9%**

Tackling Climate Change and improving the environment continued

Monoethylene Glycol (MEG) Saturation

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 MEG which reduces the rate at which gas leaks from them. A proportion of lead yarn jointed pipe is replaced annually with polyethylene pipe as part of our mains replacement programme. We are committed to the ongoing treatment of lead and yarn joints as this positively impacts gas Leakage and contributes to keeping our customers safe.

In 2021/22 our overall MEG saturation decreased marginally from 37% to 36% compared to 2020/21, as a result of this our emissions increased by 1.6GWh against the previous year. The MEG zone of influence also decreased, the zone of influence is a measure of how far MEG travels within the distribution network, however, with continued replacement of those mains treated by MEG this is to be expected as it is more difficult to maintain due to the diminishing nature of the asset base.

In RIIO-GD1 we undertook a positive approach to reducing emissions using MEG. We have actively pursued innovation opportunities (for example different nebulisers and mobile sampling equipment) whilst investigating methods of improving saturations using existing and/or upgrading equipment already in situ. In the same manner as system pressures, we introduced regular performance sessions between network analysts and operational representatives to determine the best strategies for improving sampling results and zones of influence. We introduced an 18-month programme in West Midlands to determine best practice for MEG operation, which reviewed all elements of the process. Best practice was shared with our other networks. Within RIIO-GD2 we will continue to maintain our environmental performance sessions and continue to operate our gas conditioning units in a way that returns best value for the customer and the environment.

As part of pressure strategies described in section 2.2 Average System Pressure we are also managing the network to maximise the flow of MEG throughout the low pressure system. The application of raised pressure offsets at targeted governors, where MEG is injected in the system, assists in facilitating a greater flow of MEG through the low pressure system.

The regulatory incentive framework in RIIO-GD2 rewards Distribution Networks for performance in MEG compared to a baseline target. The framework is different for MEG compared to average system pressure and doesn't include an average period calculation or a performance deadband. The difference between the Actual Leakage Volume (ALV) and the Gas Conditioning Baseline Volume (CBV) determines the performance return for the network, which is shown in the table below.

Distribution Networks replace mains suitable for MEG treatment as part of the Iron Mains Replacement Programme, so on an annual basis the opportunities for improving MEG treatment decreases. System pressure performance and MEG performance are interlinked, in the example above we describe that we can apply pressure offsets at targeted governors to increase the spread of MEG, however this has a detrimental impact on system pressure performance. As MEG opportunity decreases throughout RIIO-GD2 we could find that the focus moves towards maximising system pressure performance to the detriment of MEG performance output but for the betterment of the environment.

Other factors

There are other factors that cause leakage on our network, including interference damage, own use gas, theft of gas, however the volumes account for a much small proportion to the factors already mentioned.

MEG saturation	EN	LN	NW	WM	Cadent
2021/22 Saturation (%)	31.5%	32.9%	33.9%	41.3%	35.7%
2020/21 Saturation (%)	32.0%	34.5%	36.0%	41.5%	36.9%
Saturation difference (%)	(0.5%)	(1.6%)	(2.1%)	(0.2)%	(1.2%)

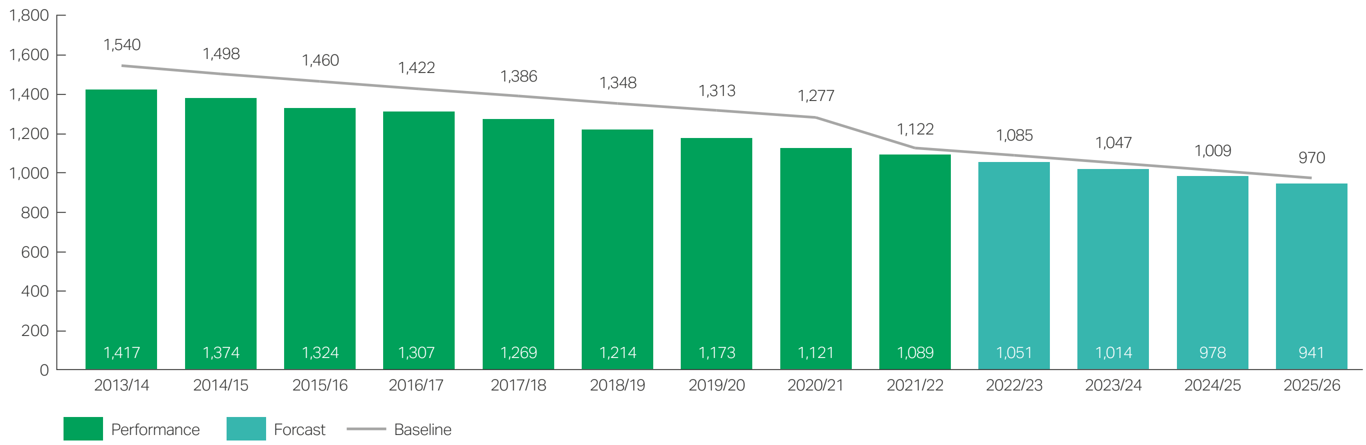
MEG performance 2021/22	EN	LN	NW	WM
Actual leakage volume (ALV)	349.4	179.3	247.4	231.0
Gas conditioning baseline volume (CBV)	349.6	177.9	249.5	230.9
Difference	(0.16) GWh	1.37 GWh	(2.10) GWh	0.03 GWh
Performance outturn	Incentive	Penalty	Incentive	Penalty

RIIO-GD1 Shrinkage volume vs. Baselines

Network	Opening	RIIO-GD1 YR1	RIIO-GD1 YR8	2021/22 Actual	Cumulative reduction
Eastern	517	478	394	381	(26%)
London	272	257	200	195	(28%)
North West	394	370	277	268	(32%)
West Midlands	328	313	251	245	(25%)
Total	**1,512**	**1,417**	**1,121**	**1,089**	**(28%)**
Shrinkage baselines (FP)		1,540	1,277	1,122*	
% Difference		(8.0%)	(12.2%)	(3.0%)	

* this is the performance target submitted for Reputational ODI performance monitoring which is awaiting Ofgem confirmation of acceptance. This target was estimated by forward projecting Mains Replacement activities and using a system pressure assumption based on the midpoint between seasonal normal and 1:20 demand conditions.

Cadent (all networks) Shrinkage performance vs. Baseline (GWh)



Cumulative performance

Since 2012/13, Shrinkage volume reductions of 423GWh (28%) against opening baselines have been achieved. On the same basis as in Section 2 above, this is the equivalent to the gas consumption of approximately 33,850 homes.

Network level cumulative performance is summarised in the table above and demonstrates performance versus baselines.

The graph above demonstrates our performance vs baselines and our future expectations of performance that match our RRP table 2.04 projections.

Strategic Innovation Fund: Digital Platform for Leakage Analytics

2021/22 is the first year of the Strategic Innovation Funding (SIF), which is a funding mechanism that will enable Networks to support projects that will contribute to the delivery of Net Zero, whilst delivering net benefits to energy consumers.

We were successful in having one Discovery Phase Project approved by Ofgem in February 22, Digital Platform for Leakage Analytics, which sits under the Ofgem theme of Data and Digitisation. This project's objective was to develop a dynamic leak location and mitigation approach which would enable the reduction of methane leakage across the gas infrastructure.

Currently we are progressing the Alpha phase of this project, which was submitted to Ofgem for approval, and expect the outcome of this submission to be received by Ofgem in summer of 2022 as to whether we have been successful or not in our application.

Zero emissions commercial fleet

In support of our ambition for decarbonisation, in our business plan we committed to have a zero emissions first responder vehicle fleet by the end of the RIIO-GD2 price control. Our current fleet is made up of mostly petrol or diesel vehicles which are more harmful to the environment due to the gases they emit during combustion. Converting our fleet to electric or other zero emission equivalents (e.g. Hydrogen) will help us in achieving our carbon neutral targets. Converting all first call responder vans to electric vehicles or other zero emission equivalents will save 4,000 tCO_2e per year.

Through the Commercial Fleet Price Control Deliverable (PCD), Ofgem provided funding for the procurement of 999 large electric vans, for our FCOs, and the installation of 401 EV charging points across our four networks. Since submitting our business plan the commercial EV fleet market has grown rapidly with many new models becoming available that would meet the needs of our FCOs, including those in Ofgem's medium vans category. As such, we have been engaging Ofgem on updating Special Condition 3.13 within our Gas Transporter licence to enable us to procure cheaper medium

Tackling Climate Change and improving the environment continued

vans rather than large vans to deliver our commitment of a zero emissions first responder fleet by the end of RIIO-GD2. If approved by Ofgem this change will also enable us to return around £4m of allowances to customers (with no financial benefit to Cadent).

Performance in 2021/22

In 2021/22 we purchased and deployed 30 electric vehicles (medium vans) and installed 30 EV charging points.

	Zero Emission vehicles purchased	EV charging points installed
Eastern	6	6
London	6	6
North West	12	12
West Midlands	6	6
Cadent	**30**	**30**

The conversion of our fleet is completed over time as previous lease contracts come to an end and/or vehicles reach the end of operation. We have adopted a leasing strategy in purchasing zero emission commercial vans as this represent the most value to Cadent and our customers and allows us to keep pace with progressing zero emission vehicle technology in the market. Whilst purchase volumes were relatively low in 2021/22, we are expected to purchase a further 360 vans in 2022/23 and then a steady purchase of around 200 vans every year thereafter to complete the conversion of our first responder fleet into a zero emission fleet.

Road to Zero car scheme

In May 2021, we undertook a significant change to our company car policy and moved towards an Electric Vehicle (EV) scheme to reduce our business mileage emissions. The scheme provides colleagues with a selection of the latest EV cars on the market and provides a home charging point to make it even easier for our colleagues to switch to electric. Over the coming years more of our drives will be changing from petrol or diesel engines as the cars are due for renewal.

For 2021/22, carbon emissions associated with company car travel decreased. The data reflects the climate in which we worked throughout the year due to the pandemic. All office colleagues worked at home where possible, and our operational programme mainly consisted of essential works. We have now adopted a hybrid working model to optimise the need for travel and to drive efficient property costs.

Reducing our wider environmental impact

Our Environmental Action Plan (EAP), due to be published in October 2022, will set out our role for the next five years and demonstrate our leadership in tackling climate change through innovation and creating pathways to decarbonisation.

We are an industry leader in determining and establishing the future potential of hydrogen and alternative fuels which will form part of the future energy mix. We are actively engaging with Government and regulators to build awareness of these opportunities offered by green gases in the journey towards net zero.

We are actively seeking ways to reduce our own carbon footprint in line with the latest science methodology. In 2021/22 we have started to look at our carbon footprint upstream and downstream of our supply chain. We recognise our responsibility to support the UK to meet its greenhouse gas target and have committed to targets to reduce our greenhouse gas emissions as we progress through to 2026. Our high standards of environmental performance focus on protecting and enhancing the environment through continuous improvement and key innovations to create long term benefits for society.

Business Carbon Footprint (BCF)

Whilst the majority of our greenhouse gas (GHG) emissions are from shrinkage, we also have other significant sources that come directly from our energy consumption (gas and electricity) and fuel use and indirectly from our supply chain. We define this as our scope 1, 2 and 3 business carbon footprint (BCF).

From RIIO-GD1 to RIIO-GD2, we have always focused on reducing our BCF, and such always reported against an annual target. The incentive has remained relatively consistent with reporting against our scope 1 & 2 emissions targets, with the inclusion of Own Use Gas (OUG) for this period. However, the reporting difference this year is that we can now track our Scope 3 emissions. This has been made much easier with the introduction of the Action Sustainability Tool.

Overall, year one of RIIO-GD2 has seen success, particularly as the company has opened itself back up to further business travel now that COVID restrictions have been removed (business mileage emissions had a 39% increase). Our scope 1 & 2 emissions have reduced by 3% from 2020/21.

The total scope 1 emissions for 2021/22 was 26,095.93tCO_2e, which is an 0.6% reduction from 2020/21. RIIO-GD2 has included our OUG metric within the scope 1 emissions, and we have reduced this by 38.61 tCO_2e over the year. With the removal of COVID restrictions, we did see an increase of 39% in our business travel emissions. However, comparing this to our 2019/20 performance, we have reduced it by 12%. Contributing strongly to our 2021/22 scope 1 emissions performance was our non-operational energy consumption which witnessed a 12% reduction from 2020/21 – this is mainly to do with a greater focus on our level of gas consumption and making everyday decisions to reduce it.

The total 2021/22 scope 2 emissions are 5527.45tCO_2e, which is a 14% reduction from 2020/21. The CO_2e factor has decreased by 9% compared to the 2020 value. This is due to a decrease in coal combustion and an increase in renewable generation contributing mostly to our performance in 2021/22.

Reporting our scope 3 emissions experienced a massive step change in year 1 of RIIO-GD2. The introduction of the Action Sustainability Tool has led to reporting our suppliers' emissions being much easier and gave us greater visibility on their emissions. In 2021/22, 54% of our contractors (by spend) are now using the tool to report their scope 3 emissions, and this is evident as our 2021/22 performance has increased by 35%. A change in the operating model for mains replacement through local contract partners has led to an increase in reporting and visibility of performance.

Performance against our annual targets has been made difficult by the uncertainty around SBTi and its reducing affiliation with fossil fuel-related companies. Therefore, the use of the business plan's annual baselines, inclusive of Scope 1, 2 and 3 (PE Pipe & Contractor vehicle emissions only) and excluding shrinkage, is our way of focusing on the target. As we now start to see an increase in business travel due to the removal of COVID restrictions and a change in operating model for our contract delivery partners, we are above the annual baseline target for year one by 12%. However, through continued energy consumption reduction plans and the adoption of hybrid working practice and EV vehicles, we are focused in bringing our performance back to target through RIIO-GD2.

Tackling Climate Change and improving the environment continued

Our climate change impact

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. We work closely with all our stakeholders to achieve this ambition and shape a sustainable future for generations to come. Launched in December 2021, our Climate Change Adaptation Report was submitted to DEFRA (Department of Environmental, Farming and Rural Affairs). The report addresses our primary commitments and provides an update on our existing risks, mitigation measures and programmes. We have also identified new risks to provide a clear picture of the climate change impacts that could affect our business.

Our climate change risks are managed in line with our overall risk management framework. This includes a thorough, consistent, and documented approach to identifying, assessing, treating, monitoring, and reporting risks. All our risks are recorded in our enterprise risk management system and are scored on a unified scoring scale with easy comparability, and visibility of risks and management.

We understand that being transparent about our performance to all stakeholders is essential to maintaining the trust of customers and colleagues. An important part of building this foundation is by improving our range of engagement activities underpinned by a clear Safety, Health, Environment and Security (SHES) framework.

Renewable energy

We continue to look for opportunities to reduce our environmental footprint, particularly in relation to our energy consumption and greenhouse gas emissions from offices, depots and operations. Through our energy procurement process we have committed to 100% certified renewable sources of both electricity and gas with contracts in place to 2024.

In 2021/22 we reviewed our estate and closed our main head office, moving to a new, purpose-built building in Ansty that supports the reduction in energy consumption through several energy initiatives. These include solar panels on the roof generating up to 300,000 kWh per year, increased external shading to lower the electrical load on air-conditioning and 67 electric vehicle charging points.

Through 2020/21 we procured 100% renewable electricity, reducing our scope 2 carbon footprint on a market-based value. In September 2021 we renewed our supplier contract with Engie and continued to secure 100% Renewable Energy of Guarantees Origin) (REGO) for electricity certified energy certificated.

During 2021/22 we have started to work on the procurement process for 100% certified renewable gas. We aim to have this in place at the start of 2022/23 reporting year, which will support our reduction in market-based scope 1 emissions.

Biodiversity improvements

We have increased our focus on biodiversity, mitigating ecosystem loss and improvement projects to respond to the growing concern over continued biodiversity loss which is now seen in a similar magnitude to the climate crisis. Since the launch of our biodiversity strategy in 2021, we have developed and implemented an ecological scope of works to establish the baseline DEFRA Biodiversity Metric. This is a measurable score that can be used across our sites to measure net gain and track improvements. In 2021/22 we conducted several phase 1 habitat surveys across our sites to allow us to improve and protect our habitats and species across our sites.

We are working with the Wildlife Trust to increase biodiversity protection and mitigation into our policy and procedures. This is to help our colleagues to improve biodiversity across our sites. We have completed two workshops and been able to create a number of action plans to address the findings. The Wildlife Trust Biodiversity Benchmark is designed to complement ISO14001 and tests the design and implementation of a business' management system to achieve continual improvements and protection of our sites.

Facilitating the energy transition

In our RIIO-GD2 business plan we set out our ambition to support and facilitate the transition to net zero. We are a leading voice on the importance of hydrogen in the future energy mix and continue to champion a whole systems approach to decarbonisation, emphasising the role of hydrogen as a low carbon alternative to natural gas.

To make hydrogen a future reality, we are working through several key areas focused on the technical challenges in adapting our distribution system to allow the widescale supply of hydrogen. In addition, we are actively engaging with many stakeholders, including Government and regulators, to demonstrate the opportunities and benefits of hydrogen as the UK moves to a low carbon future, including development of the necessary commercial and regulatory frameworks to support the transition.

Throughout 2021/22, we have continued to be proactive with a range of activities to support the wider understanding and engagement around hydrogen, which culminated in our attendance at COP26. Our own consumer research over the year has demonstrated just how little understanding there is about net zero, the role of natural gas today and the options for the future. Hydrogen as a specific topic requires continuous effort to share learnings and provide education both to the public and to key stakeholders and decision-makers. We do this both separately as Cadent and collaboratively with organisations such as the Energy Networks Association, Energy Utilities Alliance, Hydrogen UK and the Confederation of British Industries. We have worked closely with BEIS in developing their Heat and Building Strategy with a view to ensuring hydrogen is an integral part of the energy mix by 2026. We know there is a long way to go but we are moving in the right direction.

The RIIO-GD2 framework has enabled us to support the transition to net zero through delivery of initiatives at pace. We have utilised the net zero use-it-or-lose allowance, innovation stimulus, and net zero and small projects re-opener to deliver a number of projects related to hydrogen readiness. In the next sections we explain the progress we have made in 2021/22 on key initiatives safe option for the transition to net zero.

Hynet North West

Our HyNet project is moving forward well in the North West, and we continue to work to make the hydrogen cluster a reality, while also learning the lessons that will be vital for a widespread roll-out in the future.

HyNet plans to deliver decarbonisation of the industrial cluster in the North West of the UK. It consists of a consortium of organisations integrating hydrogen production with carbon capture and storage that enables energy-intensive industries to reduce their carbon emissions. The pipeline when complete will take hydrogen from the production facility at Ellesmere Port to industrial users in the region and to blending points for adding hydrogen into the local gas network.

HyNet contains unique attributes that to date has enabled it to successfully secure funding. These include a low-cost route to decarbonisation through the repurposing of offshore assets; the inclusion of industrial users within the consortium who are driving the fuel switching and hydrogen demand aspects; and the integration of the full value chain of hydrogen to include storage and blending into the gas grid.

We learnt in January 2021 that we had been awarded funding from the Industrial Decarbonisation Challenge (IDC) fund together with funding through the RIIO-2 framework for the HyNet Front-End Engineering Design (FEED) which could lead to further investment to build over RIIO-GD2 and the next price control period.

In October 2021, the UK Government announced that HyNet was one of two Track 1 projects for Carbon Capture, Utilisation and Storage (CCUS) and will therefore be supported by a share of the £1 billion Infrastructure Fund allocated for this purpose. Recent events in Ukraine have also underlined the importance of this project. Both the Prime Minister and Secretary of State have re-stated the importance of low carbon hydrogen and CCUS in the transition. Fossil fuels, particularly natural gas, have a strong role to play in the UK energy system for the foreseeable future, and so having a route to decarbonise this use through conversion to hydrogen is a clear policy objective evidenced in the Government's April 2022 Energy Security Strategy.

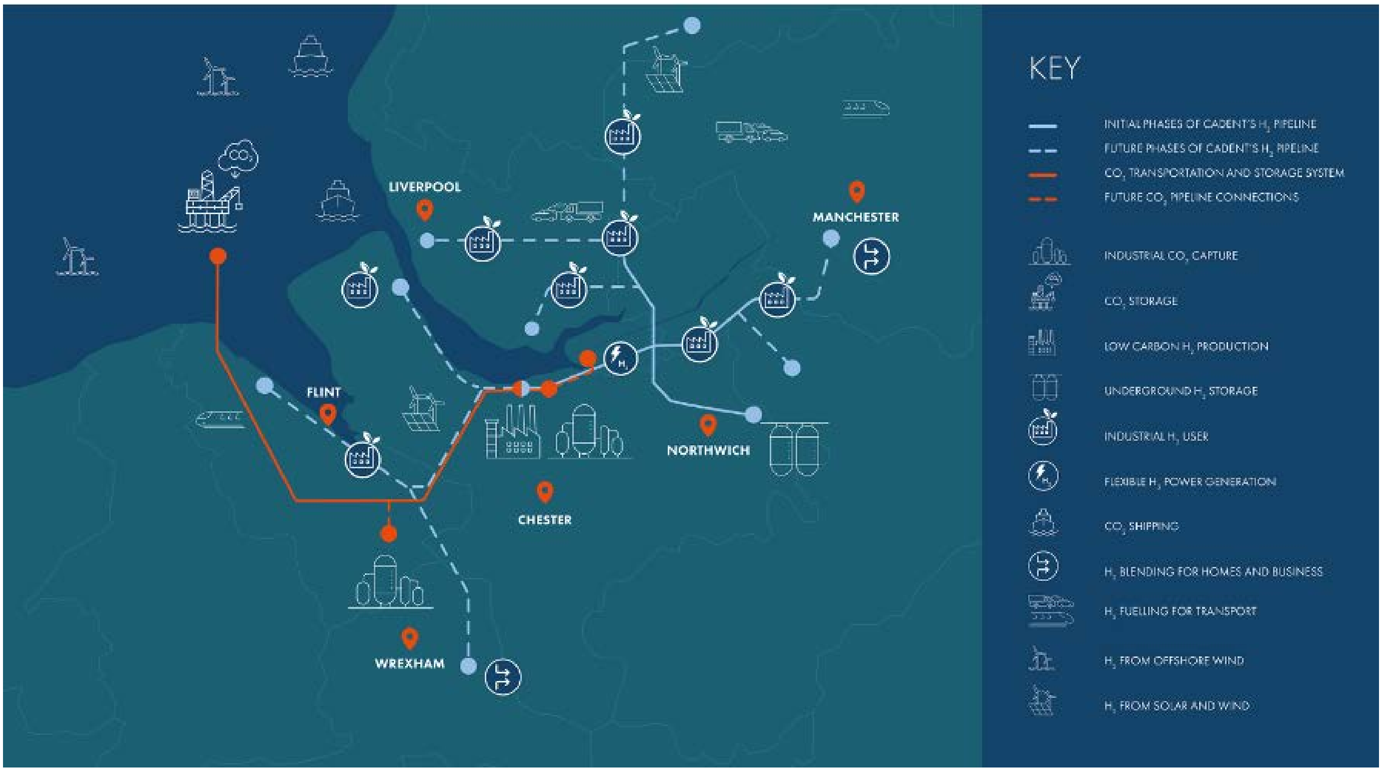
Hynet Front-End Engineering Design (FEED)

In May 2022, we submitted to Ofgem our revised Engineering Justification Paper (EJP) which sets out the progress that we have made to date on the HyNet Front-End Engineering Design (FEED) and successful application for a Developmental Consent Order (DCO) from the Secretary of State for the HyNet Phase 2 Hydrogen Pipeline, which is deemed a Nationally Significant Infrastructure Project.

HyNet principal organisations

Component	Responsible orgainisation
Carbon capture utilisation and storage system	Eni
Hydrogen production plant	Vertex Hydrogen
Hydrogen storage facilities	Inovyn
Onshore Hydrogen Pipeline / distribution system	Cadent

Tackling Climate Change and improving the environment continued



The principal organisations within this consortium (set out in the table above) are contributing to the hydrogen elements of the scheme (owner / operator, designer, construction). We are responsible for providing the dedicated hydrogen distribution system as part of Phase 2 of the overall project - the HyNet Phase 2 Hydrogen Pipeline.

The Phase 2 scope is the design and consent for connections to 12 major industries and power generation to the north and east of the Vertex hydrogen production plant at Stanlow, connection to the Inovyn salt caverns to the south for hydrogen storage, and connection to two existing gas offtakes at Partington and Warburton.

However, the project always acknowledged the potential for further network expansion as part of Phase 3, consistent with the hydrogen production programme. Such network expansion would involve extension of the Phase 2 network, and as such, should be a consideration when determining Phase 2 network capacity.

The strategic case for HyNet remains very strong, and this is recognised at all levels across Government. Hydrogen fuel is the only feasible de-carbonised option for many of the large industries in the North West. Without hydrogen, these industries will face extreme challenges in meeting their net-zero targets and may choose to relocate outside of the UK, with a significant impact on the economy if they do not have access to alternative energy supplies. The configuration of the required hydrogen distribution system has been completed to facilitate connections for the known major emitters in the region. Since the commencement of the HyNet FEED stage of the project, a significant number of new decarbonisation initiatives have formed in the North West to reinforce the need for a hydrogen network in the local area. These projects are either directly reliant on hydrogen from the HyNet network and its future expansion or reliant on the initiation of a hydrogen local transmission system in the North West.

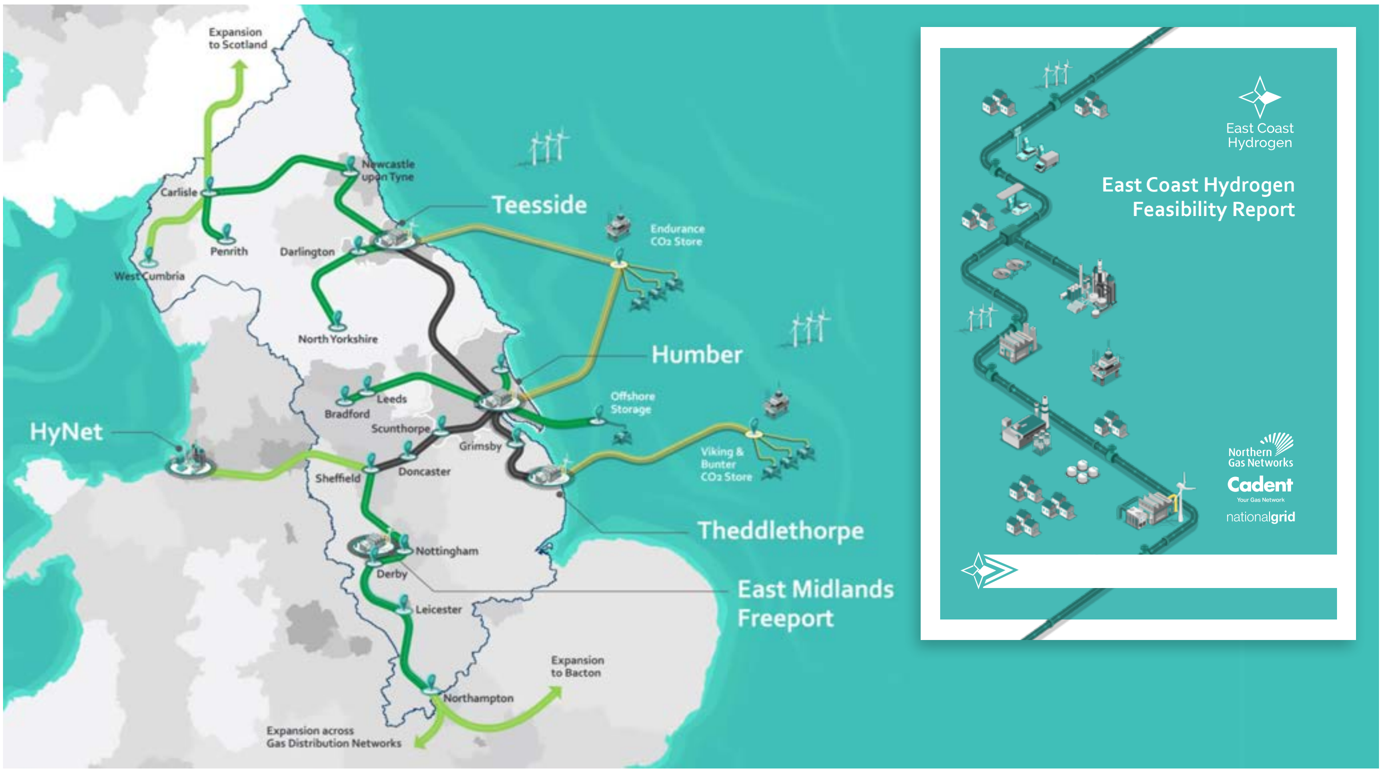
The HyNet North West Project, including this project, is progressing with the delivery of the FEED stages and consenting to allow the Final Investment Decisions to be made to meet the project timescales for completion of Phase 2 in early 2027. By 2030, Phase 3 of HyNet would:

- enable the supply of more than 30TWh of low carbon hydrogen a year (3.85 GW);
- reduce CO_2 emissions by up to 10Mt/annum; and
- meet up to 12% of the UK's national carbon reduction target.

East coast Hydrogen

We have established a new project called East Coast Hydrogen. This is a joint programme with Northern Gas Networks, and National Grid to develop the feasibility and plans for UK's Eastern hydrogen infrastructure. New and repurposed pipelines might be needed to deliver hydrogen to industrial users, homes, and businesses.

This project was formally launched with our partners via a digital event attended by over 250 individuals as well as with a more formal in-person event at the Houses of Parliament, following the release of the feasibility report. With the feasibility work completed, we will next move to the pre-FEED stage (Front End Engineering Design), where we will establish the potential routes for pipelines to deliver hydrogen from the Humber and Teesside region to key industrial users. When complete, this project could enable hydrogen to be delivered to up to 39,000 commercial sites and as many as 4.4m domestic premises across the Humber and East Midlands.



East Coast Hydrogen Feasibility Study

We utilised the net zero use it or lose it allowance to fund the feasibility study for East Coast Hydrogen. The study created a high level vision for the project, established the cost of new and re-purposed infrastructure, and gathered support for the programme.

Detailed modelling allowed us to map out how we might move low carbon hydrogen produced in the Humber and Teesside to industry and power generators across the programme footprint. Conversion costs were established and there was intensive engagement with organisations form across the hydrogen value chain including producers, hydrogen technology providers, LEPS, Local Authorities and Combined Authorities as well as the end users themselves. We gathered over 30 letters of support and the programme was officially launched in the house of Commons on 30th November 2021, with a keynote speech from Grag Hands. The feasibility study itself also included a plan for the Pre-FEED Programme.

To read the feasibility study, search for East Coast Hydrogen on cadentgas.com

East Coast Hydrogen Pre-FEED

We also utilised the net zero use it or lose it allowance to fund the pre-FEED project. The aim of the Pre-FEED is to establish the optimum pipeline route for a brand new Cadent hydrogen transmission pipeline that will connect low carbon hydrogen produced in the Humber and East Midlands Freeport Zone with heavy industry and power generators across the whole of the East Midlands network area. The Pre-FEED will also create a work package and timing plan for the FEED stage and will give early insight into how it might be best to phase the construction of the pipeline.

The project started in January 2022 and early efforts have been focussed in two main areas:

1. Pre-FEED project planning, building of the pre-FEED scope and planning out the procurement process for a contract to deliver the study. The procurement event itself will start in April 2022, with the contract being awarded in time for a start date of the study itself in August 2022.
2. Intensive engagement with heavy industry and power generators in the East Midlands network area. Work is establishing which of these organisations require low carbon hydrogen in order to decarbonise their operations, when they might need it and in what volume. All of this information will be fed into the final Pre-FEED brief which will be passed on to the contracted consultancy in July 2022.

National Grid Gas Transmission and Northern Gas Networks will also be running their own East Coast Hydrogen Pre-FEED studies, with the combined outputs from the Pre-FEEDs being pulled together by the East Coast Hydrogen Secretariat and fed into the creation of a Deployment Strategy for new and re-purposed hydrogen pipeline for the whole of the East Midlands and North East Gas networks regions.

Prospecting work to support the East Coast Hydrogen Programme

In order to explore potential future 100% hydrogen gas networks in the East of England, this project aims to develop a user base for Hydrogen. ERM have been appointed to interview gas customer companies of Cadent, to understand potential future demand and interest in Hydrogen.

Tackling Climate Change and improving the environment continued

Capital Hydrogen

We have also initiated a project with SGN and National Grid Gas Transmission using the net zero use-it-or lose it allowance to create a vision for hydrogen in London and look at the feasibility of converting London's gas networks to hydrogen.

The project will establish how much hydrogen might be needed in London, where it might be produced and stored, how it might get there, how much such a conversion might cost and what the economic impact may be. The work will also identify six early project concepts – local hydrogen production linked to heavy industry, transport or district heating applications. We expect that these project concepts could turn into early development of new hydrogen pipeline infrastructure in London.

Since starting the project in the last week of January, a bottom up forecast of hydrogen consumption over time has been created for London. Engagement has started with possible supply sites for London including Bacton and Isle of Grain as well as the GLA and the Deputy mayors. A wider stakeholder plan has been created and work has started to define the project concepts. In addition, the network planning teams within each organisation has been feeding in analysis to help establish the overall feasibility of conversion.

Hydrogen Village

Throughout 2021 we have explored the potential options for the UKs first hydrogen village which culminated in a bid to Ofgem in December 2021 to move to the next phase of detailed planning.

Our proposed village is in the North West network and would use hydrogen from the nearby proposed HyNet hydrogen production facility. This would convert the gas network of 2,000 homes from natural gas to lower carbon hydrogen and reduce the carbon emissions linked to home heating by reducing overall emissions by around a quarter.

We are very proud of the local engagement and support that we have received for the project and hope to receive a positive outcome in summer 2022 so we can proceed with the project which is the detailed design.

"The ability to demonstrate a conversion to 100% hydrogen is a key milestone in our future of gas programme and on the critical path for the Government in demonstrating the first village conversion by 2025."

Dr Angela Needle,
Director of Strategy, Cadent

Whitby
Your Hydrogen Village

Using the Network Innovation Allowance and net zero use-it-or-lose-it allowance we undertook a number of studies and consumer research to support our bid to Ofgem.

HyNet Homes Understand Phase

This project was a technical pre-feed study on a potential hydrogen village in the Northwest of England funded through the Network Innovation Allowance (NIA). The areas that were investigated included – hydrogen production and resilience, network considerations and infrastructural requirements, in-home considerations (e.g., appliances, meters), commercial and regulatory implications of a village trial and finally safety case considerations. By undertaking studies on each of these areas and then applying them to village locations enabled a hydrogen village location to be selected. This was worked up further alongside stakeholders and was submitted to BEIS and OFGEM for funding in December 2021.

Hydrogen Village Consumer Research

We led a project in collaboration with all of the gas distribution networks funded through the Network Innovation Allowance (NIA), to understand how domestic consumers and businesses are likely to respond to converting to hydrogen. The project scope included understanding consumer attitudes, behaviors, and perceptions towards the use of hydrogen as a solution for heating, cooking, and the impact of conversion. The consumer research was carried out in three stages; Inform (consolidating existing research), Qualitative (which included using a short-term online deliberative community of 100 consumers indicatively representing a broad UK consumer base) and Quantitative (to test at scale the output of the inform stage along with the themes and findings of the qualitative research). The quantitative stage provided views from a large-scale sample of the UK's consumer base. The outputs of this project was used to inform the Hydrogen village bid propositions that were submitted to BEIS in December 2021 and to act as a foundation for further work as two of the village propositions now progress to Stage 2 (Detailed Design phase).

Hydrogen Village Customer Propositions (Stage 1)

Using the net zero use-it-or-lose-it allowance, this project commissioned White Space to develop a plan for how we would create customer and business propositions for consumers within Whitby and the outputs of this work were included in the proposal that we submitted in December 2021.

The following diagram details our approach to developing the consumer propositions, which was submitted at the end of stage 1 of the project. For stage 2, we will seek to build on this approach to actually develop consumer propositions, which will be offered to consumers and businesses within the trial area to ensure maximum uptake of participants in the trial.

Main Proposition	Primary Proposition	Secondary Proposition	
Household Proposition	Typical households where consumers own and live in their own property	Fuel poor households	Typical renting households
		Households wanting new connections	Typical households with landlords
		CIVS households	Households choosing to opt out
Business Proposition	Businesses with standard energy needs participating in the trial	Businesses currently using natural gas for operational energy requirements (e.g. industrial use)	
		Businesses with standard energy needs not participating in the trial (using natural gas for heating and cooking – similar to domestic energy use)	
Community Proposition	The 'offer' for the community for taking part in the trial – including physical benefits, other tangible benefits and intangible benefits		

HyDeploy

Government have made it clear that gas networks must demonstrate that today's gas infrastructure can be safely repurposed to carry hydrogen before decisions will be made on its role in domestic heating. Our technical programme that is managed in collaboration with the other gas networks continues to provide key evidence along this journey. This includes projects looking at blending hydrogen into the gas networks under our HyDeploy programme.

HyDeploy 1

We continue to be the overall lead for hydrogen blending projects across the gas distribution networks (GDNs). The HyDeploy blending trial at Keele University successfully ran on hydrogen blends of up to 20% over Winter 2020/21 and ceased blending in March 2021. Consumers did not detect any apparent difference with their heating or appliance for the duration of the trial and there were no differences detected between appliances that had been run on blends versus those that had not.

The delivery of the Project Close Down Report for HyDeploy (1) was undertaken in 2021/22 within three months of project completion, in accordance with Network Innovation Competition (NIC) governance.

In 2017, HyDeploy set out to:

a) provide the necessary evidence to demonstrate a 20%mol blend of hydrogen was as safe as natural gas in the proposed trial area; and

b) Conduct a live demonstration at Keele University by safely providing a hydrogen blend to the residents. The trial at Keele University was a first of a kind trial as the Keele G3 network became the first distribution network to use a blend of hydrogen and natural gas since conversion in the 1970s.

The project was split into three phases which were delivered successfully allowing HyDeploy to make significant progress in both technical and regulatory requirements for the introduction of a hydrogen blend into the gas networks.

- Phase 1: Evidence gathering and customer engagement
- Phase 2: Installation of compound and network equipment
- Phase 3: Live Trial

The trial completed in March 2021 and delivered on achieving the objectives it set out. The key outcomes are:

- Successful exemption approval through a rigorous technical research programme.
- A step change in the amount of available evidence on hydrogen blending and creation of templates for further evidence production and review, which have been used in HyDeploy 2.
- Design and Installation of the first hydrogen grid entry (blending) unit.
- Safe delivery of the first 20% hydrogen trial in the UK. (100 homes and over 30 faculty buildings).
- Long term boiler research and testing through a programme of collaboration with the boiler manufacturers.
- Generation of social science research and evidence to understand consumer perceptions
- Stimulation of hydrogen supply chain through development of technologies such as gas detection equipment and composition analysis.
- Evidencing the compatibility of current operation procedures on the low and medium pressure systems with a hydrogen blend. This includes emergency response, repair, and rhinology.
- Clear demonstration of the suitability of downstream equipment such as domestic boilers and commercial boilers up to 600kW.
- 27tCO_2 abatement over the course of the trial.

More information can be found at www.hydeploy.co.uk

Tackling Climate Change and improving the environment continued

HyDeploy2

The next phase of the programme, called HyDeploy2, looked at conducting the UKs first live hydrogen blend demonstration on a public gas network, as well as addressing wider evidence gaps to allow hydrogen blending to be rolled out across the UK. The demonstration took place on a public network at Winlaton operated by Northern Gas Networks (NGN) which started blending hydrogen to 600 homes in September 2021 following approvals from the Health and Safety Executive. There has been significant and positive engagement with the residents in Winlaton. We are also testing blended hydrogen and methane on a range of commercial and industrial appliances as part of the programme.

HyDeploy2 successfully achieved its second exemption to GSMR and has enabled the first ever 20%mol hydrogen blended gas trial on a public gas network. Due to the extensive evidence which HyDeploy2 has managed to create over the course of the project, a material change to the project direction was agreed with Ofgem to ensure resources could focus their attention on the evidence to enable the wider roll out of hydrogen blending. This change will allow the programme to close all the evidence gaps in relation to the full system boundary of hydrogen blending within the Gas Distribution Networks. The evidence being created includes workstreams covering; Gas characteristics, Materials, Assets, Procedures, and Industrial and Commercial Users.

Key outcomes in 20/21 were as follows:

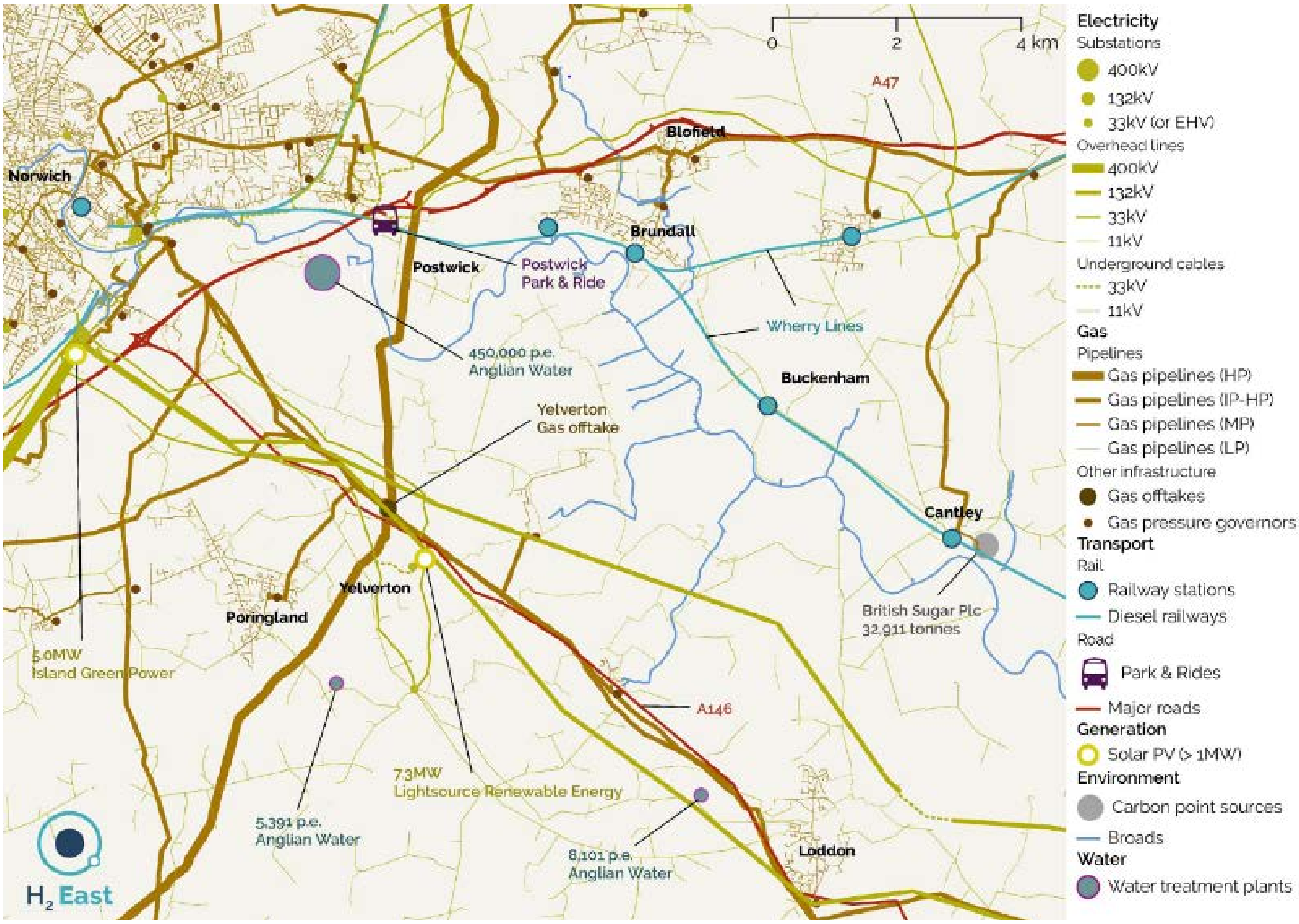
- Successful engagement with the HSE to achieve the first exemption to blend 20% hydrogen in a public gas network.
- Delivery of a robust research programme including assessments of the materials present in the Winlaton network.
- Collaboration with University of Manchester, Sheffield, and US Department of Energy to develop test data on materials.
- Completion of the domestic appliance evidence base, proving all domestic appliances can receive a blend of 20% mol hydrogen.
- Construction of the first explosion testing facility at the HSE Buxton site, coupled with an experimental programme consisting of over 60 controlled explosions.
- Industrial and Commercial testing programme which includes live trials with Pilkington's Glass on a 55 MW furnace, testing of a 1.2 MW boiler at Dunphy and a trial at the Unilever Port Sunlight site on a 7MW steam boiler that produces health and personal care products.
- Formation of a procedures review group to ensure all gas network procedures above 2 bar can be assessed to demonstrate suitability with hydrogen blends. This group includes industry experts such as Cadent, NGN, HSE, DNV, SGN and IGEM.
- Completion of a fiscal accuracy testing programme with the National Engineering Laboratory to test 26 gas meters, consisting of 21 domestic and five industrials. This work has proven that all domestic gas meters tested new or old will still conform to the applicable test standards whilst running on a blend of 20% hydrogen.
- Sharing of all HyDeploy evidence reports with the IGEM knowledge centre to allow industry to benefit from the research.

Lowestoft Pre-feasibility study

The Lowestoft pre-feasibility study looked at the possibility of using hydrogen blending into the gas network as a way to stimulate early hydrogen production in the East Anglia region and was funded through the net zero use-it-or-lose-it allowance. Having an established supply of hydrogen could then serve as the stimulus for development of localised hydrogen pipeline network schemes that connect dispersed industry with a hydrogen supply and thus enabling fuel switching and decarbonisation.

The study looked at six of our preferred 'blending locations' in East Anglia, mapping gas infrastructure and features of interest such as power lines (for green hydrogen production) and possible future end users of the hydrogen (other than blending into the gas network) such as heavy industry, transport routes for road and rail etc.

A 54 page slide show was created with detailed maps. This information can be used to identify where hydrogen blending into the gas network could be used in order to stimulate the establishment of hydrogen production that can later serve heavy industry, road and rail transport and power generators in the region. It will enable the creation of local schemes for 100% hydrogen pipeline development. This report will also be fed into the Bacton Energy Hub Special Interest Group for Demand to support the business case for the development of a hydrogen production hub at Bacton.



Trusted to act for our communities

Key performance highlights in 2021/22

"We continue to develop a reputation of trust amongst our customers and communities, providing grants through the Cadent Foundation, volunteering to support local projects and continually engaging in order to respond to the changing needs of our customers and stakeholders."

Cadent Foundation

Helped **4,621** homes become more energy efficient

Helped **2,336** people reduce their utility bills

Helped **4,177** people keep warm and safe in their home

Helped **2,073** people to manage debt

Supporting our communities

986 hours of volunteering during working hours through our Partnership with Neighbourly

New partnership with homelessness charity Emmaus UK

Thought leadership

Published our Social Impact Report

Published our Greenprint for Economic Regulation: RIIO for 2050

Promoting diversity & inclusion

5 E,D&I employee communities including new community, Thrive! raising awareness and supporting disability

3 new priority working groups:
1. Employee Lifecycle,
2. Inclusive Leadership,
3. Become an Anti-Racism Organisation

1st GDN to sign up to the Race at Work Charter

Signing up to the **Social Mobility Pledge**

Ambition for remainder of RIIO-GD2

We are committed to building on a strong start to RIIO-GD2 and are committed to:

We aim to raise over **£400k** response to emergencies within standards

We aim to have **3,000+** volunteering days donated by 2026

Cadent Foundation Continues to support the community with grants

Being trusted by our customers is extremely important to us. We're an essential public service provider so it's important that we are trusted to act responsibly for our communities and always deliver on our promises.

We recognise that every interaction we undertake with our customers, stakeholders and communities has the potential to build, or damage, trust in Cadent. Opportunities to build trust comes through our contact and communication with our customers and through delivery of operational activities that our customers depend upon. We also have a wider social responsibility to drive a real and sustainable difference to the communities we support.

In recognising this, we initiated a RIIO-GD2 outcome area 'Trusted to Act for Our Communities', which goes beyond the requirements set out by Ofgem. This outcome focuses on building trust in how we operate, making a real and sustainable difference to the communities we support and demonstrating fairness in our approach.

We have undertaken a comprehensive programme of business options testing with our customers and stakeholders. Their in-depth feedback has shaped our five customer priority areas that underpin our 'Trusted to Act for Our Communities' outcome:

1. **Building trust through every action** – How we will recommit to building trust through every operational interaction with customers and stakeholders
2. **Making a positive difference for our communities** – The RIIO-GD2 activities that we will undertake to go the extra mile for customers and communities
3. **Sustainable engagement to drive better customer outcomes** – How we will continue to engender trust by taking action on the insights we draw from customer engagement
4. **Create an environment for our employees to thrive and be proud of the service we deliver** – The actions we take to support our people within Cadent and generate a diverse and inclusive environment to help them develop
5. **Transparency in how we operate** – How we are socially responsible in our corporate activities and build trust through transparency

Building trust through every action

Trust is not something that happens quickly - trust is built over repeated and consistent behaviours of transparency and being open and honest so that customers can understand the actions of our business and have insight into how we are performing, making them feel more engaged.

To ensure we are building trust through every action we continue to:

- Publish on our website and through social media how we have performed against our key operational and customer safety measures
- Publish on our website and through social media how we have performed against each of our service benchmarks (including customer satisfaction)
- Publish our total tax contribution as part of our Tax Strategy and assess opportunities to extend our best practice in this area
- Ensure our customers and stakeholders understand our actions by publishing our VCMA report and our Social Impact Report

Trusted to act for our communities continued

Making a positive difference for our communities

The Cadent Foundation

We recognise the role we play within the communities we serve – and how we can support economic growth and customers in vulnerable situations. We therefore committed to investing at least 1% of post-tax profits back into our communities through the Cadent Foundation.

The Foundation is being used to support a variety of priority activities within our communities – supporting customers in vulnerable situations, supporting the local economy (including encouraging local innovation), as well as specific local initiatives.

The Cadent Foundation is a donor advised fund (DAF) and the donation from Cadent is made to a charitable partner. The current charitable partner is Charities Trust (Charity Registration No: 327489) and is managed via a contract between Cadent and Charities Trust.

90% of estimated profits are paid in the year to which the profits relate. The remaining 10% is paid in the following year once the profit number is finalised as part of the Statutory Account process.

In the current year the 10% relating to 2020/21 amounted to £539,204. This has been apportioned across our networks using supply points as the aim is for this is to give back to the community and customers we serve. This amounts to £499,086 in 18/19 prices.

In the current year Cadent did not make a profit. This is largely as a result of the increase in the future tax rate from 19% to 25% resulting in an exceptional deferred tax charge in the year. As a result, no other payments have been made.

Despite this the Cadent Foundation has awarded 45 grants in the year with total funding given being £3,879,072. The great work the foundation has been doing can be found in our **Cadent Foundation Impact Report**.

Our new partnership with homelessness charity Emmaus UK

In January 2022 we partnered with Emmaus UK, an adult homelessness charity and social enterprise. The charity supports individuals experiencing homelessness by providing wellbeing support, meaningful work experience and training, and a home for as long as someone may need it. Through partnering with Emmaus UK, we are building on the close alignment with our purpose, values, and social impact ambitions to provide more people with warm homes, accelerated access to careers in the energy sector and sustainable futures.

We aim to raise over £400,000 for Emmaus UK and we will encourage employees to champion the partnership by enhancing their knowledge of homelessness and providing vital support through fundraising, volunteering, and sharing expertise on energy efficiency, employability skills and tackling climate change.

Supporting employee volunteering

One of the ways we can contribute to our communities is by giving our time to volunteering. As well as giving back to the community, volunteering provides the chance to develop new skills or build on existing experience and knowledge. Volunteering also provides challenging and rewarding experiences for our people. While the decision on whether to volunteer is a personal one, we want to ensure that we support and encourage our people to spend a proportion of their time at work volunteering.

We give all of our employees two paid days per financial year to volunteer for the good causes which align to the three themes of our social impact framework of making life easier, fairer and greener.

To ensure volunteering is available and accessible to all, we have partnered with award-winning community support expert organisation, Neighbourly, to create an online and interactive volunteering platform which offers a focussed range of inclusive opportunities across all of our networks. We aim to have donated at least 3,000 volunteering days by 2026.

Sustainable engagement to drive better customer outcomes

From our Board, right through to the front line of our organisation, the strategic importance of high-quality engagement with our customers and stakeholders is fundamental to achieving our vision.

Indeed, stakeholder engagement performance is one of the measures that underpins our Short-Term Incentive Scheme – all employees receive a financial reward against this scheme each year, which is set by our Remuneration Committee. We increased the weighting applied to engagement in 2019/20 from previous years to add weight to this crucial area.

Each month, our Board receives a report triggered through our Customer Insights Forum, relating to key engagement activities in the month and updates on actions related to the insights gathered. Our variety of engagement methods provides us with both a breadth and depth of information, which enables us to build a matrix of intelligence about our customers' interests, wants and needs. It also supports our commitment to engage our hard-to-reach stakeholders; we are adapting and being flexible, offering choice on methods of communication, rather than expecting stakeholders to go out of their way to reach us. Our engagement prioritisation tool helps us identify the best engagement method.

Engagement that focuses on the needs of our four regions

Each of our networks is very different; geographically and demographically, and this leads to intrinsic differences in optimum operational and service requirements. The best way for us to learn about our customers and what they want and expect from their energy network, is for us to embed ourselves within the communities in which they live; to be both visible and available at a local level, to be known and trusted by them and the people who represent them.

Our regional stakeholder engagement groups reflect our focus on localised engagement to ensure that we are attuned to what our customers really want. We will build on existing local forums such as Local Energy Advice Partnerships (LEAPs), local resilience forums and infrastructure boards as much as possible. It is through the learning from these regional groups that we will drive and implement the bespoke, high-quality services that our customers deserve. Examples of organisations in these groups include; local councils, environmental organisations, local MPs and local businesses.

Beyond this, our independent CEG provides expert challenge to our business decisions and hold us to account to the promises we make in the Business Plan. Formed in June 2018, the CEG brings together people from a variety of backgrounds (consumer, third sector, business, government, regulation) to provide independent examination and challenge to our business.

Responsive to stakeholder needs, now and into the future

The Customer Insights Forum feeds directly into our overarching governance framework. Each month, our Chief Operating Officer chairs the Customer Operations Performance Committee ('COPC'), which is fed by inputs from the Customer Insights Forum and links from and to network performance meetings.

At any one time, there are a number (typically between 5–10) of national customer improvement initiatives (identified and prioritised through the Customer Insights Forum) that are measured and tracked at the COPC meetings.

Additionally, there are typically a further 5–10 network-specific initiatives that are performance managed through network performance meetings. This model creates a clear line of sight between insights and actions, and progress is reported to the Board on a monthly basis.

Engaging on plans for the future – as well as responding to changing needs now, our engagement looks further afield than the next price control period, especially in areas such as the future role of gas and our role in supporting the UK's challenge to transition from a predominantly fossil fuel-delivered energy model to a more sustainable one by 2050.

This engagement more strategic and delivered through a higher level of authority in the organisation, including at Board level. Clear accountability has been established for this type of engagement within the organisation and this links back with the Customer Insights Forum to ensure a level of consistency between our short, medium and long-term directions. We have recognised the strategic importance of engagement against a longer time horizon, which often expands beyond today's customers and generally involves consulting on matters at a societal level rather than at a regional or customer level.

Trusted to act for our communities continued

Create an environment for our employees to thrive and be proud of the service we deliver

A diverse and inclusive workplace

To be a successful business and deliver what our customers expect from us, it is important to have a diverse and inclusive culture. In the same way as we are targeting inclusion and accessibility of our services for our customers, we are striving to create an environment that embraces diversity and allows people to be themselves and bring the best of their skills to the workplace every day. We have several focus areas to ensure we are attracting and retaining a diverse range of talent, for example improving our gender pay gap, encouraging more diversity in our field force recruitment, supporting faith requirements, and improving disability awareness.

To attract a diverse range of talent, we aim to make job opportunities visible, accessible, inspiring, and achievable to the broadest range of people. This includes working with the most disadvantaged and socially immobile communities in our networks, to proactively help them gain meaningful employment in the energy sector.

We have five employee communities that help us to identify and address challenges facing employees from disadvantaged and underrepresented groups. Each community has an established committee, sponsored by a member of the executive leadership team. The role of the communities is to support effective change across the organisation, including:

- **Signing the Social Mobility Pledge**, representing a powerful shift towards being a truly purpose-led organisation committed to social mobility. The three key elements of the Pledge are: outreach, access, and recruitment.
- **Achieving Disability Confident Level 2** status and continue to work on integrating inclusive practices and environments for people with disabilities.
- **Becoming the first gas distribution network to sign up to the Race at Work Charter**, an initiative designed to improve outcomes for Black, Asian, Mixed Race and minority ethnic employees in the UK, making positive progress against the seven key actions.
- **Becoming signatories of the Armed Forces Covenant** and achieving the Ministry of Defence's Employer Recognition Scheme Silver Award in October 2021 in recognition of our commitment to supporting members of the armed forces.
- **Signing the Youth Friendly Employer pledge**, the BAME Apprentice Alliance Pledge and Employers Domestic Abuse Covenant.
- **Being active members of the Women in Utilities Network** and partners of the Women's Engineering Society.

Our five employee communities

Women in Cadent

Creating a network of colleagues from across our business, who are all committed to creating equality and supporting women's professional and personal development.

Embrace

Raising awareness of different faiths and highlighting issues affecting colleagues from an ethnic minority background, helping to develop an inclusive workforce that reflects the communities we serve.

Cadent Military Community

Actively supporting service leaders entering the business, including our current reservists and those that have previously served, ensuring that we continue to be an Armed Forces friendly employer.

Pride at Work

Ensuring current and future generations of Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ+) colleagues feel comfortable, safe, included, and fulfilled at work.

Thrive!

This is our newest E,D&I community and is about creating awareness of the spectrum of disabilities and what this means for our employees, providing support and guidance to ensure that we become a leading employer for people with disabilities.

Since the official launch of our ED&I strategy, we have made great progress in creating a safe and inclusive environment. We are affirming our commitment to equality, diversity and inclusion by launching our three ED&I strategic priorities:

- Placing E,D&I at the heart of our Employee Lifecycle
- Driving an Inclusive Leadership with E,D&I at its core
- Becoming an Anti-Racism organisation

E,D&I working groups are being set up, one for each strategic priority, and they will have representation from across the business, E,D&I communities and be supported our senior leadership to drive change, take action, and deliver against our strategic priorities.

Place ED&I at the heart of our Employee Lifecycle

Review what interventions might be require across the lifecycle – Inspire, Attract, Recruit, Develop, Retain, Exit

Drive Inclusive Leadership with ED&I at it's core

Leaders at Cadent will be pivotal to driving the change needed for us to succeed. ED&I needs to be at the core of our leadership behaviours

Become an Anti-Racist organisation

In a world where Racial Equality is still not a reality it is critical that we takes a stand

Keeping our people safe

Safety is paramount to all that we do. We are committed to ensuring the safety of our people, our customers, and the public. We will always strive to improve our safety performance and create an environment to look after our people and are reinvigorating our safety culture, with visible leadership for safety at all levels in our organisation. We are refreshing our safety management system with a 'back to basics' approach, and more effective communication of safety risks and issues, using real-time communication tools and other advances in technology. Our aim is to achieve long-term reductions in our lost time injury frequency rate ('LTIFR') even beyond the world class levels that we are currently delivering.

Skills and training

We believe in supporting our people with training and development, to ensure their safety, and help them to thrive within their chosen career.

We ensure all employees have the technical competencies to do their role and offer every employee the opportunity to develop a personal development plan, overseen by their management team.

We provide dedicated training centres such as those at Hitchin and Hollinwood and satellite centres at Windsor Street and Slough.

We are involved in the development of hydrogen skills, including the creation of the skills matrix, competency frameworks and technical standards required to deliver hydrogen as part of the future energy mix. It is critical we remain at the heart of this development to ensure that skills for hydrogen are prepared for with accuracy and employer involvement. This includes providing our own colleagues with the right skills and supporting new people joining the industry. The launch of our hydrogen academy in 2024 will further build on this commitment.

Our focus on STEM enrichment (science, technology, engineering, and maths), careers inspiration, and work experience allows us to develop our future workforce. We are preparing the talent of the future now and engaging with people from all backgrounds by engaging with local colleges, charities, and third-sector organisations across our networks.

We have been recognised as a Youth Friendly Employer for our efforts in championing career opportunities to young people. We contribute to the wider sector skills challenge through our collaboration with Energy & Utility Skills and our membership of the Apprentice and Technical Education Advisory Group.

Trusted to act for our communities continued

Transparency in how we operate

Our aim is to be as transparent as possible with our business practices and build trust in everything we do. To demonstrate our commitments in this space we go above our requirements as a non-listed business, publishing a full set of Annual Report and Accounts each year with full disclosure of tax payment, dividends and executive pay information.

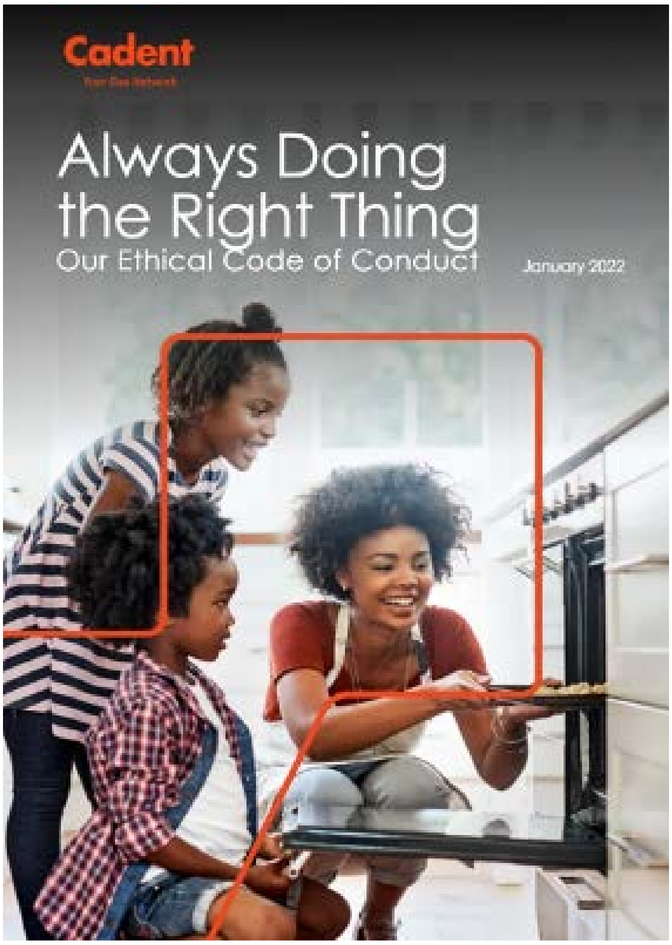
In reporting year 2020/21 we voluntarily started to work towards full TCFD disclosure (Task Force on Climate Related Financial Disclosures) ahead of the legal timeframe for us to be fully compliant in reporting year 2023/24.

We believe it is important to continue to prioritise transparency as an organisation by:

- Reporting annually on Executive pay and how our Executive team are incentivised to deliver for customers.
- Transparent reporting of shareholder dividends with demonstrable links to meeting customer commitments.
- Enhanced data provision to both Shippers and customers to aid better customer understanding of the impact we have on their bill.
- Our Annual Report, which will provide detail regarding our governance that is beyond statutory requirements.
- Continuing the good practice in the publication of an annual Safety & Sustainability Report.

Always doing the right thing

We have created a culture where our code of 'Always Doing The Right Thing' is embedded in the decisions we make every day, both as individuals and as teams. Our code underpins our company values, guiding the way we behave and how we work today, along with our aspirations for tomorrow. Each year all employees receive online training to support this conduct, including a focus on anti-bribery, fraud and ethics.



Appendix

In this section we provide further information about specific areas related to our output performance and financial performance.

Appendix continued

Appendix 1: Additional performance updates

In the following section we have provided supporting information to provide wider context to our data tables and narrative.

Delivering a resilient network to keep energy flowing safely and reliably

Table 11.02 Responding to calls

On 25th – 26th March between 20:00 – 01:00 we experienced an issue with our primary telephony platform resulting in a system failure which meant that calls could not be delivered to an advisor and remained in the call queue. As a result, we invoked our secondary telephony (off-net) system, which allowed us visibility of the number of calls received but we are not able to determine if these had been answered or handled in the correct timescales. 480 calls were taken through this secondary system but as we were unable to demonstrate if they had been answered within the required standard, we have classified these as out of service.

Tables 6.02 - 6.08 Mains replacement: Repex workload

There are circa 2.7km that we were not able to capture in time to submit this year, therefore these will be included in next years submission.

Providing a quality experience for all our customers, stakeholders & communities

Table 11.04: Vulnerability and Carbon Monoxide Allowance (VCMA)

Please note that there is minor difference of £75,135.97 (2%) in the actual costs reported within the VCMA annual report. This is made up of costs that span multiple projects such as publishing costs including literature we distribute to customers as part of numerous individual VCMA projects and it is not possible to disaggregate these to individual PEAs.

Table 10.01: Table Personalising Welfare Facilities

We have used year one to test our newly created Additional Welfare Decision Tool. Over time, we've added in more customer services / products, whilst working with our supply chain and policy teams to ensure that we have reliable, safe products and services to respond with.

Through review we have developed a number of assumptions to support how we account the details included in the RRP reporting pack for Additional Welfare Provision. This is to mitigate any risk of over reporting due to the difference in how you might interpret household vs. individuals, when handing out items. An example being that items such as food vouchers being counted per head but an oil filled radiator being provided per household. These assumptions are set out in the table below.

Assumptions for provision of additional welfare

Hot Food	Food Vouchers (Just East pilot / BCM)	£15 / person / day in household unless otherwise informed. Max 6/household
	Dine on Us	£15 / person / day in household unless otherwise informed. Max 6/household
	Other food provisions (e.g. Local food outlets)	£15 / person / day in household unless otherwise informed. Max 6/household
	Slow Cookers	1 x product provided is counted as 1 x customer only. Max 1/household
Hot Water	Portable Shower	1 x product provided is counted as 1 x customer only. Max 1/household
	Large Kettle (3.5L)	1 x product provided is counted as 1 x customer only. Max 1/household
	Hotel / gym washing facilities (via Clarity)	1 x customer / visit
Alternative Accommodation	Hotels	1 x customer / stay
	Taxis	1 x customer / journey
	Food & drink while in accommodation (via Clarity)	1 x customer / stay
Additional Welfare	B-Warm heated seat cover	1 x customer / product. Max 3/household
	Blankets non electrical	1 x customer / product. Max 3/household
	Thermal socks	1 x customer / product
	Micro fibre towels	1 x customer / product
	Oil filled radiators	1 x product provided is counted as 1 x customer only. Max 3/household

Appendix 2: Regulatory Financial Performance

We welcome the amendments that Ofgem have made to RRP to bring about changes to integrate RRP with revenue setting and charges, simplifying the process relative to RIIO-1.

However, we notice the below observations that we would like to be considered for next year's RRP. The main item to note is that amendments to the allowances presented are required prior to the final PCFM run in November 2022 to ensure customers receive accurate charges. Further details are provided below:

Allowances: Disaggregation for Volume Drivers and PCD

To complete the requirements for the Revenue RRP tables 2.01 Price Control Deliverables & 2.02 Volume Drivers and therefore to generate an Allowance value output, the GDNs have been required to input all the information within these tables. Using guidance from Ofgem, Cadent have used information as per the Gas Transporter Licence (V8.6 issued May 2022) for Baseline, allowed unit costs, and any pre-adjustment allowance figures.

The Gas Transporter Licence includes a single allowed unit cost figure, which we have interpreted as the period average unit cost. We have then used a judgement to calculate annual unit costs which align to the Allowance profiles shown in the Gas Transporter Licence and therefore factor in Ofgem's ongoing efficiencies.

Where the Gas Transporter Licence quotes a baseline volume, we have used judgement to assume this is flat phased over the 5 years of the Price Control.

Citing the 'Baseline Network Risk Output' Price Control Deliverable as an example, where there is no unit rate or workload information provided or required within the RRP, we have directly used the Allowance figures as per the Gas Transporter Licence (V8.6 issued May 2022).

Using the Gas Transporter Licence (V8.6 issued May 2022) and the aforementioned judgements, the Allowance figures generated and therefore reported in this RRP submission are higher (£154m over the 5 years in 18/19 prices) than the equivalent, respective allowances stated in the Ofgem released June 2022 PCFM.

The increase in allowances in the RRP compared to the previously released PCFM will flow into the Regulatory Financial Performance Reporting (RFPR) pack and consequentially affect RoRE & RAV values. As such, we will adjust for this when presenting allowances in the RFPR.

Cadent understands that Ofgem intend to commence a statutory consultation of the Licence, and supporting models, after the submission of this RRP and supporting documents. Cadent welcomes and will support this work with the ambition of enabling a re-statement of Allowances in advance of the completion of the Annual Iteration Process and determining Allowed Revenues for 2023/24 and beyond.

Our conclusion is that tables 3.01 should not be copied into the PCFM for the purposes of the AIP process due to inconsistencies in the licence values for allowances and the PCFM cut of allowances. Further work is required to ensure allowances are accurately included in the PCFM.

Totex Allowances in Table 1.01

We have included totex allowances in 1.01 to align to the Final Determination; up-dated for the pipeline log information as requested. The Totex forecast aligns to our current view of spend. This comparison is not like for like as the totex allowances exclude the latest view of Real Price Effect allowances and exclude the impact from the Competitions and Market Authority. We recommend that the comparison is adjusted for future year RRPs to enable a like for like comparison. We will include in the RFPR the more up to date allowances which will give a more accurate view of performance expectations.

Re-opener Pipeline Log

The pipeline log as presented in table 11.05 includes all items we are considering for re-openers. Pending additional discussions with Ofgem on how these projects will be socialised with customers; we have deliberately excluded certain projects (e.g. Hynet and East Coast Hydrogen) from our tables 2.03 and 3.01 which connect to the PCFM. We welcome on-going discussions on funding for these projects.

NARMs Forecast

We understand the focus of the NARMs RRP and this data is on the actuals rather than forecast data and these values should be treated as indicative.

Appendix 3: Our re-opener performance

To support our data table submission please see our separate Re-opener document for further details relating to our re-openers.

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