Cadent
Your Gas Network

Strategic Performance Overview

2023/24

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1. Strategic summary

CEO statement

After three years of RIIO-GD2, Cadent is in a very different place to when the period started. We have transformed our business and the experiences of our customers. We have now established ourselves with the frontier performers, delivered on the promises we made in our RIIO-GD2 plan and can be seen to be leading the sector in developing services for customers in vulnerable situations as well as continuing to take a lead role in decarbonisation and supporting the energy transition.

I am proud of our operational performance, we continue to operate our network at 99.9% reliability and are working at pace to deliver high standards of safety, customer satisfaction and service levels. We have worked incredibly hard to keep our proportion of the gas bill as low as possible, while navigating the challenges faced across the communities we serve. We have moved into a leading position across several key performance areas and continue to deliver on our commitments. This has been supported by our leadership teams, Board, and investors, encouraging continual investment into many important areas of the business.

We continue to invest in our network to ensure resilience and security. With our mains replacement programme, to upgrade old iron mains with plastic, longer lasting pipes, we have replaced over 1,746km in 2023/24. Renewing these pipes will keep our communities connected with a safe and reliable gas supply long into the future, as we continuously invest in cleaner, greener alternatives. The introduction of our new leakage detection technologies has already made a positive impact to our already very small leakage levels, and we have solid plans to expand this programme to maximise impact.

We have also implemented extensive changes to our data and digitalisation strategy, and I am pleased to see work taking place to make a difference in our cyber security and IT systems. Our new ways of working are progressive in our sector, with our in-house technical capabilities improving year-on-year to make it easier for our colleagues.

As is the case with many organisations, we continue to experience macro-economic challenges leading to upward cost pressures encountered in delivering our investment programmes. However, we are committed to maintaining a reliable and safe network now and in the future.

We have yet again experienced significant improvement in our overall customer satisfaction scores for emergency response and repair, resulting in achieving the maximum incentive position in three of our four networks. For connections, two of our regulatory networks top the Ofgem league tables for satisfaction, and we have seen best in class performance and delivery for our customers in this area. We have transformed our service to customers in multiple occupancy buildings and are now industry leading in the techniques and processes we deploy and how we engage and plan with building owners.

Whilst inflation has returned to more “normal” levels, the focus on vulnerability is still critical as we stabilise in an uncertain environment. Many continue to live in fuel poverty and face challenges with energy bills. Providing a safe and reliable service continues to be critical to ensure we keep people warm while protecting the planet for the future.

I’m proud of the leading role we have taken to support customers in vulnerable situations utilising the Vulnerability and Carbon Monoxide Allowance (VCMA). It has been great to see the launch of our 200th Centre for Warmth, as we saw, first-hand, the rapid need for this support across our communities living in vulnerable situations. The project has picked up pace over the year, to identify and partner with local charities in areas of high deprivation and fuel poverty and the work the centres are doing, is beyond anything we could have imagined. This is all further enhanced by our investors directly reinvesting profits into the Cadent Foundation charity which is delivering further support to the communities we serve at a scale unparalleled in the sector.

We have made great progress against our ambitious Environmental Action Plan; we understand the impact that our operations and activities have on the environment and climate. We are the first gas distribution network who have made meaningful progress towards decarbonising our vehicle fleet. We have over 50% of our emergency response workforce now in zero emissions vehicles despite this being more expensive than the allowances we received.

We are pleased to lead the way by performing with pride and purpose to go above and beyond to deliver on our operational performance and social impact commitments. As we move towards 2026, the end of our RIIO-GD2 regulatory period, our focus is on continuing to build on our solid foundations and we remain committed to our transformative plans for RIIO-GD3.

I reflect on a year in which our performance has been excellent and thank all our teams and colleagues who have worked tirelessly to deliver on our ambitious commitments. With continued investment, dedication, and hard work, we are honoured to be the trusted custodians of the largest gas distribution network in the UK. We take the moments to celebrate our successes but learn lessons for future improvement and we don't stand still. Our objective is to stretch ourselves and lead the sector operationally and into a new future with consumers at the heart of that future.

We have exciting plans for the future and have made good progress in developing our plans for RIIO-GD3. As our sector continues navigating the next phase of its journey in support of decarbonisation, we will continue developing our operations and technologies even further to ensure we maintain industry leading performance, driving customer expectations by going beyond to make a real difference to our communities, all while continuing to attract and retain the very best talent.

Steve Fraser
Chief Executive Officer

Chairman statement

I would like to start by commending the people of Cadent for the strong operational performance of the business. We have always focused on driving significant change to position Cadent as a top performer in the industry and I am happy to report a great deal of progress that we can all be proud of. That said, we continue to work through various challenges in the sector such as the cost-of-living crisis, fluctuations in energy bills, inflation, and continued uncertainty with regards to the ultimate direction of the energy landscape.

As always, we tackle these challenges head-on, continuing to drive change, while seeking to make a positive difference to our colleagues and communities. We are pleased with the results we have delivered across the year and continue to commit to showing real positive action at pace, going above and beyond in the energy sector. We always try to act with purpose and compassion in everything we do, and this is something to be immensely proud of.

I would like to commend the Executive and leadership teams for the tremendous work they have delivered to bring Cadent's performance into the spotlight. Teams across Cadent continue to drive such remarkable progress in meeting our operational challenges and improving our overall performance. We have seen stronger scores in the Ofgem customer satisfaction tables, particularly in North London.

The Vulnerability and Carbon Monoxide Allowance (VCMA) fund established by Ofgem, has continued to be instrumental in making a huge impact across our network. Since it was established in 2021, our Centres for Warmth programme has grown significantly to over 200 centres, including the inclusion of Home Start centres, as we strive to support our communities affected by the cost-of-living crisis. The main aim is to support communities who are living in vulnerable situations with advice regarding fuel poverty, household income, benefits and debt. These centres are a community lifeline, supporting financial and mental wellbeing, as well as gas safety at home. To date, we have invested over £5.2m in the project, offering over 564,000 services.

Our ambition is to be a leading voice in the energy sector, helping to achieve the UK's net zero ambitions in a way that is deliverable and that ensures consumers are at the heart of the transition. There is still a long way to go in demonstrating how greener alternatives can support the huge task of decarbonising industry and domestic heating at scale, but our hydrogen and green gas projects are progressing well, and we've learnt lessons along the way that will be vital in ensuring we meet our net zero obligations.

We are working closely with central and local Government, opinion formers and policymakers, and with Ofgem and other industry stakeholders so we can provide consistent, clear, and strategic advice in order to maintain investment in our critical national infrastructure, relied upon by over 80% of UK homes and businesses.

This includes evaluating the framework for future investment and network regulation, and developing pathfinder projects to ensure the evolving energy needs of the UK are met alongside the need for consistent reliability, affordability, and security of supply. We are actively developing our RIIO-GD3 submission to ensure a whole systems approach is applied to support the strategic long-term role of the network.

Cadent is an exciting place to be as we embark on our journey towards the end of RIIO-GD2, I would like to acknowledge all the efforts of our senior leadership teams aided by everyone in operations and business support, all of whom have worked tirelessly throughout the year to make a difference to all our communities and to shape the future for the benefit of all our stakeholders and the environment. I am looking forward to seeing how our plans can contribute to and influence the national effort to achieve net zero.

Sir Adrian Montague CBE
Chairman

2. Performance summary

Output performance summary 2023/24

All annual output targets were met, and we plan to meet all our five-year period output targets.

Outcome	Output	EN	LN	NW	WM
Delivering a resilient network to keep the energy flowing safely & reliably	Emergency call handling	●	●	●	●
	Emergency response – Uncontrolled	●	●	●	●
	Emergency response – Controlled	●	●	●	●
	Tier 1 mains	●	●	●	●
	Tier 1 services	●	●	●	●
	NARM	●	●	●	●
	London Medium Pressure	N/A	●	N/A	N/A
	Capital Projects	●	●	●	●
	High rise building plans	●	●	●	●
Providing a quality experience for all our customers & stakeholders	GSOP	●	●	●	●
	ER&R CSAT	●	●	●	●
	Planned work CSAT	●	●	●	●
	Connections CSAT	●	●	●	●
	Complaints handling	●	●	●	●
	Unplanned interruptions – MOBs	●	●	●	●
	Unplanned interruptions – non-MOBs	●	●	●	●
	Collaborative streetworks	●	●	N/A	N/A
	Consumer vulnerability minimum standards	●	●	●	●
	Consumer vulnerability reputational incentive	●	●	●	●
Tackling climate change & improving the environment	Shrinkage reputational incentive	●	●	●	●
	Shrinkage financial incentive	●	●	●	●
	Commercial EV Fleet	●	●	●	●

● (green)	Achieved annual output or on target to meet period output
● (amber)	At risk of failing five-year period output
● (red)	Failed to achieve annual output or will fail five-year period output

Financial summary

2023/24 (£m, 18/19 prices)	EN	LN	NW	WM
Regulatory Asset Value	3,366	2,429	2,382	1,784
Allowed Revenue	811.2	513.9	591.0	416.1
Return on Regulated Equity (%)	3.4	3.2	4.3	5.6

Totex summary

During 2023/24 we overspent our Totex allowances by £117m as our investment programme increased further in scale, and inflationary and market pressures continued to impact the cost base.

2023/24 (£m, 18/19 prices)	EN	LN	NW	WM
Costs	394	302	251	178
Adjusted allowances	332	263	237	182
Outperformance	(60)	(37)	(12)	5
% Outperformance	(18)%	(14)%	(5)%	3%
Return for customers	(30)	(18)	(6)	2

Output Delivery Incentives

In 2023/24 we achieved a reward across CSAT in all our networks, a reward for Collaborative Streetworks in LN, and for Shrinkage a reward in LN and NW, with a penalty in EN and WM. We did not pay any penalties for Complaints and Unplanned interruptions. (See Output Performance section for further detail)

Incentive performance, period to date (£m, 18/19 prices)	EN	LN	NW	WM
Customer Satisfaction	5.0	1.7	4.6	2.7
Complaints	0	0	0	0
Unplanned Interruptions	0	0	0	0
Shrinkage	0.1	(0.0)	1.4	0.4
Collaborative Streetworks	0.3	2.9	N/A	N/A

3. Financial performance

This year we have spent over £1bn in operating, maintaining and investing in our gas distribution networks throughout the North West, West Midlands, East Midlands, East of England and North London. Over the five-year regulatory period we forecast that we will spend over £5bn in bringing gas to 11 million homes, businesses, schools and hospitals across our regions as well as playing a key role in keeping the lights on, through our support of peaking power plants, and facilitating green gas through our 44 biomethane connections. We have continued to focus on the operational improvements and efficiencies to deliver on our regulatory commitments and to minimise the impact of our activities on customers' bills.

Our actual and planned performance is set out in a period of economic and political uncertainty. We continue to face many competing challenges including delivering in an environment of higher costs to attract capital, affordability constraints, attracting and retaining diverse talent in a challenging labour market, security of supply concerns, and delivering decarbonisation. Despite these challenges we continue to deliver strong efficiency and financial performance which is expected to see a real term bill reduction by the end of RIIO-GD2 compared to start of RIIO-GD1.

Return on Regulatory Equity (RORE)

For RIIO-GD2, we are publishing the Regulatory Financial Performance Reporting ("RFPR") in September. We expect operational RORE, on average, over the five years, to be 4.4%, below the allowed return of 4.97%[1] at a Cadent level. This reflects inflationary and market driven cost pressures, in excess of the allowances provided for, and the increased scale of our investment programme. This performance is delivered with a backdrop of strong customer incentive performance and delivery of stretching efficiency plans.

Cadent RORE	2021/22	2022/23	2023/24	2024/25	2025/26	Average
Allowed Return	4.52%	4.56%	5.28%	5.59%	5.52%	5.09%
Totex	0.7%	(0.7)%	(1.4)%	(1.6)%	(1.2)%	(0.8)%
BP Incentive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial ODIs	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
NIA Funding	(0.0)%	(0.0)%	(0.0)%	(0.0)%	(0.0)%	(0.0)%
Fines & Penalities	0.1%	(0.2)%	(0.1)%	(0.1)%	(0.1)%	(0.1)%
Operational RORE	**5.2%**	**3.8%**	**3.9%**	**4.1%**	**4.5%**	**4.4%**

Table 3.1: Cadent Return on Regulated Equity (RORE) performance by year

	5 year RIIO-GD2 Average				
	East	London	North West	West Midlands	Cadent
Allowed Return	5.1%	5.1%	5.1%	5.1%	5.1%
Totex	(1.6)%	(1.3)%	(0.4)%	0.6%	(0.8)%
BP Incentive	0.0%	(0.0)%	(0.0)%	(0.0)%	0.0%
Financial ODIs	0.2%	0.2%	0.2%	0.1%	0.2%
NIA Funding	(0.0)%	(0.0)%	(0.0)%	(0.0)%	(0.0)%
Fines & Penalities	(0.1)%	(0.1)%	(0.0)%	(0.1)%	(0.1)%
Operational RORE	**3.6%**	**3.9%**	**4.9%**	**5.7%**	**4.4%**

Table 3.2: Five-year average RORE performance by network

After the Allowed Equity Return, the main driver of RORE is the Totex incentive mechanism. We are experiencing significant input cost pressures that are not being compensated for through allowances, on top of stretching ongoing efficiencies. Mitigating these cost pressures through our transformation programme and rigorous

[1] Operational RORE is calculated in line with RFPR reporting methodology.

control over expenditure ensure overspend is constrained; and where there is overspend, the risk to customers is mitigated via a sharing mechanism, reducing the customer bill impact.

There are very few positive Financial Output Delivery Incentives within the RIIO-GD2 framework, however we expect to earn incentive rewards that will contribute a 0.2% RORE over the period through the delivery of improved customer satisfaction.

Revenue and Customer Bills

Allowed Revenue

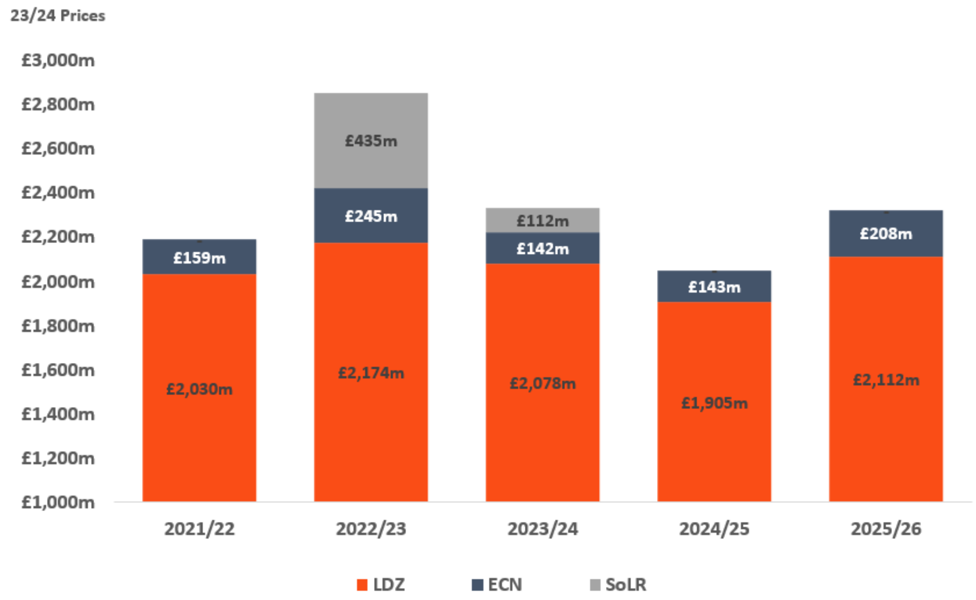


Figure 3.3: Cadent Revenues (2023/24 price base)

At the beginning of the price control Ofgem set revenues based on the Final Determinations which were subsequently amended following a Competition and Markets Authority ("CMA") appeal. Our Allowed Revenue is calculated each year based on our cost and workload performance and is used to set customer bills. The amount of revenue we collect does not always match the amounts allowed due to changes in customer demand for example. Any under or over recovery is corrected for in future years. Our revenues are made up of three main charging building blocks. Revenues in relation to the provision of the gas network services are known as Local Distribution Zones ("LDZ"). We also collect revenue to pay for the National Transmission System ("NTS") for Exit Capacity charges, and the Supplier of Last Resort (SOLR) payments. The latter two are pass through costs to the gas networks as we have limited opportunity to reduce them.

Network	2021/22	2022/23	2023/24	2024/25	2025/26
Eastern	742	972	811	700	801
London	535	686	514	505	554
North West	523	683	591	476	553
West Midlands	389	512	416	367	411
Cadent	2,189	2,854	2,332	2,048	2,320

Table 3.4: Cadent Revenues by network (2023/24 price base)

Our Allowed Revenue in the year to March 2024 was £2,332m which reflects significantly lower SOLR and NTS revenues than the previous year. Allowed revenue will reduce in 2024/25 due to timing adjustments from previous periods before reverting to normalised levels in 2025/26.

Customer Bill Impact

The amount each customer pays through their bill is driven by consumption, the Allowed Revenue for the year, changes in the number of customers, and the split of revenues between domestic versus industrial and commercial users. If the number of customers increases, then the amount each customer would pay is less. The chart below demonstrates the illustrative cost and services delivered to a typical domestic consumer in the year 2023/24.

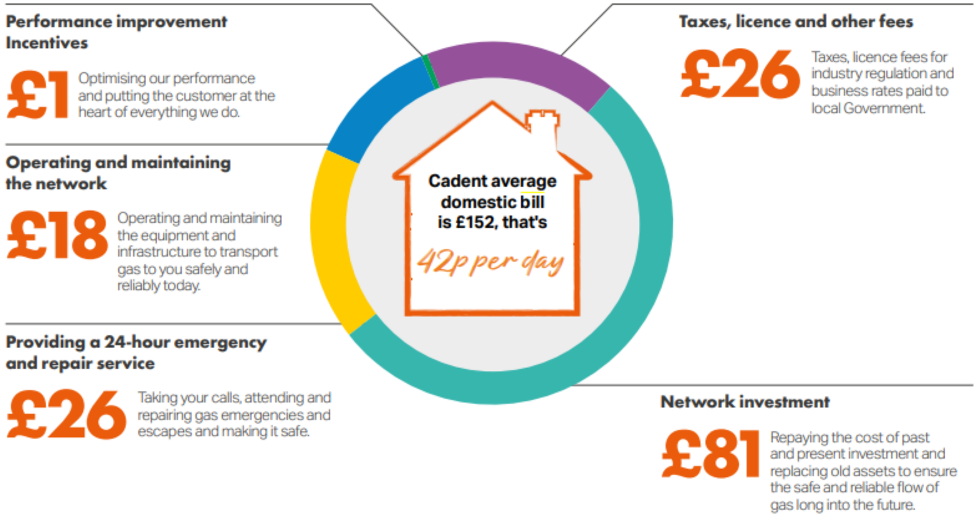


Figure 3.5: Average customer bill (23/24 price base)

Compared to the first year of RIIO-GD1, charges in relation to LDZ services were £164 per customer on average (adjusting for inflation), the average cost in 2023/24 has reduced to £152 per domestic customer.

4. Performance against our allowances

Totex performance

£m (18/19 prices)	2022	2023	2024	2025	2026	Total	Allowance	
Opex	383	412	421	446	445	**2,107**	1,978	(7%)
Capex	158	190	216	219	198	**981**	878	(12%)
Repex	440	466	495	471	455	**2,327**	2,229	(4%)
Totex	**981**	**1,068**	**1,132**	**1,136**	**1,098**	**5,415**	**5,085**	**(6%)**
Allowances	1,042	1,017	1,015	1,010	1,001	5,085		
Variance	**61**	**(51)**	**(117)**	**(126)**	**(97)**	**(330)**		
Cumulative	**61**	**10**	**(107)**	**(233)**	**(330)**	**(330)**		
% variance	6%	0%	(3%)	(6%)	(6%)	(6%)		
Eastern	333	372	387	403	390	**1,885**	1,676	(12%)
London	254	280	305	301	289	**1,429**	1,307	(9%)
North West	235	245	261	245	243	**1,229**	1,192	(3%)
West Midlands	159	171	179	187	176	**872**	910	4%

Table 4.1 Totex performance vs. allowance

Whilst delivering strong performance against our outputs, the cost of achieving that has been in excess of our Totex allowances by £107m at a Cadent level, after the first three years of the regulatory period. During 2023/24, expenditure exceeded Totex allowances by £117m, a reflection of inflationary and market driven cost pressures in excess of the inflation and Real Price Effect (RPEs) allowances, and the increased scale of our investment programme.

Despite significant focus on driving efficiencies into our cost base and a business wide transformation programme aimed at utilising technology and innovation to realise cost savings, we are now forecasting an overspend of our RIIO-GD2 Totex allowances by £330m (6%). This reflects the challenging economic environment that we have faced over the past few years in which it has proven difficult to mitigate further inflationary pressures via additional efficiencies on top of our already ambitious RIIO-GD2 plans.

What has become apparent is that our cost base is driven by market pressures that do not react to reducing inflation as mechanistically as the allowances expect through the RPE inflation indices.

Cumulatively, across the first three years, controllable Opex costs were closely aligned with allowances. However, the prolonged period of higher inflation alongside broadly flat workload, rather than declining as predicted, has resulted in additional cost pressures and an overspend in 2023/24 of £29m (7%). We are now forecasting that the challenging cost environment and flat workload will continue over the remaining two years, and against a backdrop of reducing allowances, we expect Opex costs to exceed allowances by 7% over the five-year period.

As forecast, 2023/24 saw a planned increase in Capex, with a number of projects moving from the design to build stage during the year. This was in addition to the incremental spend on the governor improvement programme, which is now largely complete and, in the timescale committed to the HSE. During 2024/25 we expect to see a further increase in capital expenditure, particularly in the category of LTS, Storage and Entry, driven by the delivery of capacity upgrade projects and non-rechargeable pipeline diversions. Overall, across RIIO-GD2, we are now forecasting that we will overspend capex by £103m, largely due to the delivery of additional scope that was not included in our RIIO-GD2 allowances.

We continue to make good progress on the delivery of our Price Control Deliverable (PCD) commitments for Tier 1 mains decommissioning both in terms of length and work mix, expecting to be within the PCD deadbands across each of our networks by the end of RIIO-GD2. We were however set very challenging Repex allowances due to the use of a 85th percentile cost benchmark, alongside a high ongoing efficiency assumption applied to our already stretching business plan. Despite costs being expected to fall over the remaining two years in line with a reduction in work delivery and efficiency improvements, overall, we are forecasting to exceed allowances by 4% across RIIO-GD2.

Controllable Opex

£m (18/19 prices)	2022	2023	2024	2025	2026	Total	Allowance
Work Management	82	93	84	89	86	**434**	404
Emergency	50	53	47	49	49	**248**	206
Repairs	61	73	77	72	72	**355**	289
Maintenance	58	56	63	58	58	**293**	476
Other Direct Activities	19	22	15	14	14	**84**	92
Work Execution	187	205	203	194	191	**980**	1,063
Business Support	100	101	120	148	154	**623**	432
Training & Apprentices	13	14	14	15	14	**70**	79
Controllable Opex	**383**	**412**	**421**	**446**	**445**	**2,107**	**1,978**
Allowances	419	399	392	378	390	1,978	
Variance	**36**	**(14)**	**(29)**	**(67)**	**(56)**	**(129)**	
Eastern	134	146	144	154	152	**730**	644
London	97	102	110	114	114	**537**	517
North West	90	98	98	104	105	**495**	457
West Midlands	62	66	69	74	74	**345**	359

Table 4.2 Controllable Opex

Controllable Opex expenditure of £421m in the year was £9m (2%) higher than in 2022/23 excluding the impact of inflation. There was an increase in business support costs driven by increased IT expenditure, primarily relating to Data Best Practice maturity and the adoption of Software as a Service (SAAS). This was offset by a reduction in our Work Management and Work Execution costs.

Work Execution and Work Management

Our **Work Management** costs in 2022/23 were significantly impacted by the major incident in Stannington and the period in December where we experienced unprecedented operational challenges leading to a peak in workload and cost. Work management costs have now returned to the previous levels.

Work Execution costs have remained at a similar level compared to 2023/24. We have had an increase in **Repair** costs, driven by an increase in workload and **Streetworks** costs, and an increase in **Maintenance** costs, due to increased routine maintenance activities and costs relating to undertaking MOBs surveys. However, this has been offset by a decrease in **Emergency** costs and costs relating to **Other Direct Activities**, which were higher in 2022/23 due to the impact of the Stannington and December incidents.

Although workload is expected to remain broadly flat across the price control, we continue to forecast an overall reduction in **Work Execution** costs as the impact of our transformational projects drive an improvement in the productivity of our field-based resources.

Business Support costs increased by £19m (19%), however the cost of delivering our core Business Support services has remained relatively stable and is expected to do so over the next two years. The cost increase primarily relates to some inflationary cost pressures continuing to affect licence renewals, as well as the timing of projects related to our Data Best Practice maturity, Cyber security, transformation projects and the adoption of the Software as a Service (SAAS) accounting approach.

Costs associated with **Training and Apprentices** have remained flat year on year as we continue to invest in both existing workforce and attract new future talent into the industry. Development of people continues to be a fundamental part of our strategy and we expected to maintain this level of spend for the remainder of the RIIO-GD2 period.

Non-Controllable Opex

£m (18/19 prices)	2022	2023	2024	2025	2026	Total
Shrinkage	54	52	23	21	20	170
Ofgem License	10	10	10	11	11	52
Network Rates	195	178	139	145	145	802
Pension deficit	32	20	-	-	-	52
NTS Exit costs	151	137	106	116	168	678
Xoserve	14	11	12	11	12	60
Other*	4	349	90	3	-	446
Total non-controllable costs	**460**	**757**	**380**	**307**	**356**	**2,260**
Eastern	164	275	137	110	129	815
London	100	160	83	68	78	489
North West	110	183	92	74	86	545
West Midlands	86	139	68	55	63	411
Total non-controllable costs	**460**	**757**	**380**	**307**	**356**	**2,260**

**Other* = Miscellaneous pass-through inc. SOLR

Table 4.3: Non-Controllable Opex

Non-Controllable (or "pass through") costs are largely outside of the control of network operators. Costs are charged to end customers as noted above and included in customer bills. The main variability recently has been in relation to:

- Shrinkage costs which are linked to global gas prices and are now forecast to remain below the historic high noted over the last two-years of RIIO-GD2;
- Network rates have reduced in the year and are expected to remain lower than the start of RIIO-GD2 due to lower rateable values;
- NTS exit costs have reduced, reflecting the latest prices as published by National Gas; and
- Other pass-through costs relate largely to socialising the Supplier of Last Resort costs which are not expected to be significant post 2023/24. However, our annual Gas Transporter Licence fee has increased by circa. £2m. Some of this increase will be driven by Ofgem's decision to include Heat Networks' regulation costs into licence fee cost recovery principles.

Capex performance

£m (18/19 prices)	2022	2023	2024	2025	2026	Total	Allowance	
LTS, Storage & Entry	27	31	44	51	47	**200**	195	(2%)
Connections	33	29	23	23	19	**127**	105	(21%)
Reinforcement (<7 barg)	15	12	23	37	26	**114**	70	(62%)
Governors	12	24	30	10	5	**80**	17	(382%)
Other Capex	71	94	97	98	100	**460**	491	6%
Total Capex costs	**158**	**190**	**216**	**219**	**198**	**981**	**878**	**(12%)**
Allowances	169	177	178	184	171	878		
Variance	**11**	**(13)**	**(39)**	**(34)**	**(27)**	**(103)**		
Eastern	70	72	86	90	86	**403**	344	(17%)
London	27	37	35	43	42	**183**	163	(12%)
North West	40	49	62	47	42	**240**	223	(7%)
West Midlands	21	32	34	39	29	**154**	148	(5%)

Table 4.4: Capex performance

Our Capex costs were £216m in 2023/24, £39m (22%) higher than our allowances. The increased spend on the prior year reflects the workload delivery plan, profiled to peak across 2023/24 and 2024/25 before reducing in the final year of RIIO-GD2.

Within our capital works we are seeing cost pressures across all activities driven by the price of materials, supply chain availability and the complexity of the work. This is offset in part by the change in classification of IT spend (Software as a Service) that is now included within Controllable Opex in accordance with Accounting Standards (noted above).

Our **LTS, Storage and Entry** costs were £13m (42%) higher than the previous year, with most of the increase in our Eastern network, in line with our Business Plan. Work undertaken included capacity upgrades covered by the Capital Projects PCD as well as investment in preheat, filters, electrical & instrumentation assets and FWACV (Flow Weighted Average Calorific Value) metering upgrades. LTS pipelines also include the cost of the remediation of a High Pressure (HP) repair at Campbells Meadow (£3m) in the Eastern network.

Connections expenditure fell by £6m (21%) to £23m across all Networks, driven by falling demand, with overall volumes 17% lower than last year. Despite the fall in demand, new connections still exceed disconnections, resulting in an overall growth to the customer base.

Demand for new housing connections have been particularly impacted, with a 28% fall in volumes. Fuel Poor Connections have fallen by 94% following the changes to industry policy and reduced availability of funding for in-home first-time heating, and the associated repurposing of the allowances to support our continued work on Vulnerability and Carbon Monoxide Awareness.

Any change in connections workload results in an adjustment to allowances and revenues via the volume driver mechanism.

Mains reinforcement expenditure has increased by £11m year on year, with workload 7.8km higher than the previous year. This is needs driven and we look to reinforce where it is economical to do so as it allows a better whole life cost of project delivery and ensures we maintain resilience on the network. We will assess year on year as we develop our mains replacement delivery programme on where this is most economical to deploy to keep costs down for customers.

In agreement with the HSE, Cadent has completed a three-year programme of improvements to our **Governor** assets, ensuring the entire population of over 9,000 sites is compliant with DSEAR legislation whilst also remediating other issues identified including corrosion, security and HASAWA (Health & Safety at Work Act) signage compliance.

During the year, £30m of expenditure was incurred upgrading major components as well as replacement installations and new housing units. So far, £65m has been invested during the RIIO-GD2 period, with a substantial reduction expected in the remaining two years.

The programme has also impacted **Other Network Capex** which included £21m of investment in electrical and instrumentation across all pressure reduction installations, £16m of which on our governor portfolio, which is expected to reduce in the upcoming two years. We also saw a £3m increase in security upgrades to operational sites in the year.

Capex expenditure on **Vehicles** (Other Capex) has increased by £9m as a result of the continuation of our Fleet Transformation Programme. Almost 900 vans have been replaced, reducing the average age of the operational fleet to 3.5 years, compared to 5.5 years in 2019. In addition, we now have 491 electric commercial vehicles, contributing to our net zero commitments.

Investment in **IT and Telecoms** (Other Capex) decreased by £4m due to the completion of the major field and office device replacement projects in 2022/23, and the nature of projects delivered in 2023/24 being accounted for as Software as a Service (SaaS) and thus included in Controllable Opex.

We continue to invest in our **Property** (Other Capex) portfolio with expenditure of £15m during the year, predominately on Murdoch House in Leicester, where a proportion of our Customer Experience Centre Contact teams are based and the ECC (Energy Control Centre) resilience facility is now located. In addition, we have invested in back-up power generators at key depots in all networks as part of our winter resilience plan in the event of widespread power cuts.

Repex performance

Repex Costs

£m (18/19 prices)	2022	2023	2024	2025	2026	Total	Allowance	
Tier 1: Mains & Services	339	353	356	328	327	**1,703**	1,610	(6%)
Tier 2: Mains & Services	5	6	7	11	11	**40**	32	(25%)
Tier 3: Mains & Services	8	11	17	13	6	**55**	39	(41%)
Steel Mains & Services	15	16	19	17	16	**83**	77	(8%)
Other Mains	9	1	2	-	-	**12**	55	78%
Diversions	5	4	12	19	14	**54**	53	(2%)
Other Services	42	51	53	51	51	**248**	199	(25%)
Tier 1 Stubs	3	1	-	7	6	**17**	23	26%
Risers	13	19	24	24	24	**104**	139	25%
Robotic Intervention	1	4	5	1	-	**11**	2	(450%)
Total Repex costs	**440**	**466**	**495**	**471**	**455**	**2,327**	**2,229**	**(4%)**
Allowances	454	442	445	448	440	2,229		
Variance	**14**	**(24)**	**(50)**	**(23)**	**(15)**	**(98)**		
Eastern	129	153	159	159	151	**751**	689	(9%)
London	130	141	160	145	133	**709**	626	(13%)
North West	105	98	100	94	98	**495**	511	3%
West Midlands	76	74	76	73	73	**372**	403	8%

Table 4.5 Repex costs

Our investment in Repex totalled £495m in 2023/24, £50m higher than our company allowances and £29m higher than the previous year. Whilst we decommissioned 24km (2%) less Tier 1 Mains than in 2022/23, the work mix delivered this year is more skewed towards the larger diameter pipes, with 59km (32%) more 8" decommissioned in 2023/24 than in the previous year.

There is 2,990km of Tier 1 mains left to be decommissioned by the end of the period against the Tier 1 mains PCD baseline, and we expect to be within the PCD deadbands across each of our networks by the end of the RIIO-GD2 period.

Diversions spend increased in year three and is expected to remain high in years four and five, mainly in our Eastern and North West networks. We also expect an increase in workload over the final two years to rectify built over structures.

There are a number of factors that contribute towards our Repex spend position compared to allowances that can be summarised as follows:

- The use of the 85th percentile in cost assessment and the inclusion of a very stretching efficiency assumption applied to our already stretching Business Plan.
- Inflationary pressures beyond those compensated for through allowances, including the competitive market for resources driving up labour rates, particularly impacting our London and Eastern networks which show expenditure being greater than allowances, and higher costs of raw materials.
- Regional factors in our London network 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, we note as part of the RIIO-ED2 final determinations, further regional factors were awarded to network operators and in our view, this illustrates that the full scale of factors that impact our efficiency in London is not currently being accounted for.

Repex workload

Repex spend is directly correlated to the amount of length we have or are forecast to decommission. In 2023/24 we have decommissioned a total of 1,754km of metallic mains across all tiers and materials. Within Tier 1 Mains, we have decommissioned 20km (2%) less than 2022/23, however the mix of workload has changed towards the larger diameter pipes, with 89km less 4" and 5" mains decommissioned, but 58km more 8" mains decommissioned.

Km	2022	2023	2024	2025	2026	Total
Tier 1	1,537	1,596	1,572	1,566	1,545	**7,816**
Tier 2A	1	2	3	12	10	**27**
Tier 2B	11	19	19	19	21	**88**
Tier 3	6	7	12	3	0	**28**
Iron Mains	1,555	1,625	1,605	1,599	1,576	**7,959**
Steel	54	62	59	58	50	**284**
Other	37	61	61	29	27	**215**
Diversions	36	38	29	70	79	**253**
Total	**1,682**	**1,787**	**1,754**	**1,756**	**1,732**	**8,711**
Eastern	563	638	650	659	642	**3,152**
London	329	354	342	363	357	**1,745**
North West	471	458	433	426	427	**2,214**
West Midlands	319	337	329	309	306	**1,600**

Table 4.6: Repex workload[2]

The largest spend relates to decommissioning and replacing **Tier 1 iron mains** and undertaking interventions on the associated services. This accounted for 72% of the total Repex spend in 2023/24 and 73% of our actual forecast spend over the price control period. During RIIO-GD2 this work is captured within a PCD and the base workload within our **Tier 1 Mains** PCD is just over 7,692km across RIIO-GD2, or 1,538km per annum. We delivered 1,572km in 2023/24, bringing our total to date for RIIO-GD2 to 4,705km which is 2% more length than the baseline assumes. This positive delivery against the baseline is reflective of the hard work in implementing our new Repex delivery model. In terms of work mix, our delivery plans will see us being within -2% to +3% against the PCD target in all networks.

Tier 2A Mains can be difficult to predict and as such is subject to a volume driver revenue adjustment mechanism. Our delivery in the first three years of RIIO-GD2 has been lower than originally forecast, however we expect workload to increase during 2024/25 and to be broadly in line with our period forecast of 28km.

The **London Medium Pressure Scheme** has resulted in the replacement of 9.6km of the planned mains (approximately 97% of the period target) for the RIIO-GD2 period as well as two of the four planned Governor interventions. We remain on track to deliver against our PCD output over the five-year period.

We expect to deliver significantly more **Steel Mains** during the five-year period than included in the final determination. This increase relates to obligations we have to replace associated steel mains that are directly connected to our Iron Mains. In the first three years we have seen higher volumes of Steel Mains per km of Iron Mains than historically observed, and we expect this to continue over the remainder of the period. Steel Mains form part of the Network Asset Risk Metric (NARM) mechanism where we are funded to remove risk across a number of asset categories. As such, this additional Steel Mains delivery will contribute towards any reactive workload forecast within the NARM baseline that does not materialise and over-delivering against our monetised risk targets.

[2] Tier 1 workload in table includes Tier 1 Mains decommissioned PCD plus Tier 1 Stubs

5. Output performance

Performance highlights

We set out in our RIIO-GD2 business plan the outcomes our customers and stakeholders want us to deliver. In the section below, we provide the key performance highlights against each of these outcomes and explain how we have performed against the relevant regulatory outputs or commitments that sit under these.

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

1.4m calls to the National Gas Emergency number

94% of your calls answered in 30 seconds

99.9% Network reliability

Tackling climate change and improving the environment

3.4% Reduction in Shrinkage Emissions

491 Zero-carbon commercial vehicles purchased

2.8% Reduction in Business Carbon Footprint

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

9.3 Average Customer Satisfaction score

£1bn in social benefits through VCMA projects over RIIO-GD2

89% Complaints resolved within one working day

Trusted to act for our communities

3.3m Invested in the Cadent Foundation

1,259 days in employee volunteering

£0.4m Raised through Employee Volunteering

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

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 providing safety advice on behalf of all gas networks across the UK.

In 2023/24, we received c.1.4 million telephone calls and answered 94% within 30 seconds. Following last year's incident in December 2022, where we experienced an unforecastable and unprecedented volume of non-gas emergency calls into our gas emergency line, we have led the industry in promoting awareness of the scenarios that fall under the definition of a gas emergency.

To ensure the National Gas Emergency Service was prepared in the event of a further incident or surplus of calls, 'Fast Track' emergency call training was delivered to an additional 263 call handlers from within the business and through a working partnership with Coventry University.

To add a layer of protection to the gas emergency call handling service, and subsequently to GDNs attendance of genuine gas emergencies, we have worked with Ofgem and the HSE to introduce a 'Select Step' triage process on the National Gas Emergency line which can be implemented when pre-defined operational risk levels are exceeded. This was in place in time for winter, however, thus far we have only needed to use it once (Saturday 2nd December). When we assessed the calls from 2nd December, along with the 'call to work order' ratio for the period where the triage was utilised, we found that almost 60% of the calls were not related to gas emergencies. We have also continued to undertake 'secret shopper' activities testing supplier phone lines and have seen continued difficulties outside of office hours to get through to their enquiries teams as well as redirection to the National Gas Emergency phone line. This is a demonstration that whilst we have done all within our control to mitigate the drivers behind the December 2022 incident, the root cause of the availability of supplier contact centres has not yet been resolved. Ofgem are currently undertaking a Request for Information relating to activating a supplier licence condition that would require them to be available for their customers outside of normal business hours. We are committed to supporting this review and helping Ofgem evidence and make the decision to activate this licence condition.

We have implemented further improvements in our telephony system to ensure we maintain a consistent and safe service. We built and deployed a new Business Continuity Management telephony system called 'Voice Foundry Disaster Recovery' which could be invoked should there be an issue with the 0800 111 999 number to ensure that we are able to provide the 24/7 service as outlined in our licence. In August 2023, this was utilised for the first time following a fault across the BAU system and allowed us to answer 224 customer calls. We also developed and introduced the 'Locate Me' app this year to aid emergency call handlers in locating gas emergencies that are not linked to a fixed address.

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 to potential cases of carbon monoxide poisoning from appliances.

In 2023/24, we attended over 308,000 gas escapes, a slight reduction of 2.3% compared to last year. Whilst the volume of gas escapes was similar to last year, there was a variance in the profile of the work received. This was most noticeable in December 2023 where volumes were almost 25% lower than in December 2022. This was due to the unforecastable and unprecedented volume of calls received in December 2022, particularly in a two-week incident period between 10 December to 20 December. As discussed in the "Answering emergency calls" section above, whilst we have done all within our control to mitigate the drivers behind the December 2022 incident, the root cause of the availability of supplier contact centres has not yet been resolved, so the exogenous risk to the gas emergency service remains.

Whilst this exogenous risk remains, it was not realised this year and our performance in 2023/24 was in line with our historic trends, with all our networks achieving above 98% against both the uncontrolled and controlled escape standards.

%	One hour response to uncontrolled emergencies	Two hour response to controlled emergencies
EN	98.9%	99.3%
LN	98.3%	98.2%
NW	98.8%	99.0%
WM	98.4%	98.8%

Table 5.1: 23/24 Emergency Standards of Service performance

Mains replacement

Tier 1 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 our networks. We have replaced 4,702km of Tier 1 Iron Mains over the first three years of RIIO-GD2. In year three we increased our delivery of the higher diameter and more complex work whilst maintaining a similar overall volume run rate compared to the previous year.

Overall, we have decommissioned 2% more Tier 1 Mains workload compared to a linear profile. When adjusted for the diameter mix, we are ahead in EN, NW and WM and slightly behind (5%) in LN. However, we have plans to increase our workload in our London network next year in the higher diameter bands and are confident that all networks will be within the PCD deadband (+3%/-2%) at the end of the period. These plans have already been implemented and are showing good delivery.

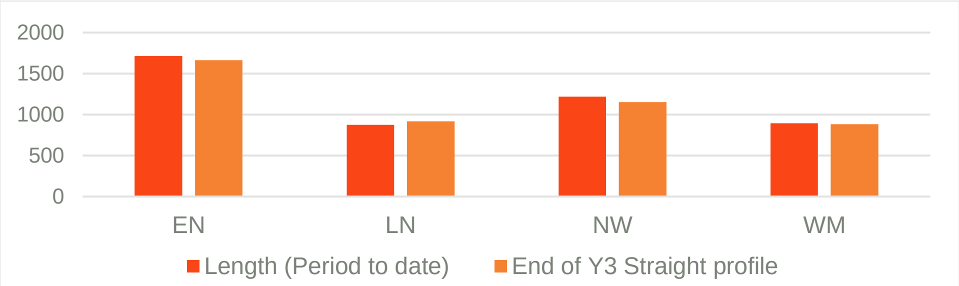


Figure 5.2: Tier 1 Mains PCD – Cumulative length decommissioned vs. straight profile

Tier 1 Services PCD

Tier 1 service intervention delivery is a consequence of the Tier 1 mains delivered and the density of services can vary significantly scheme by scheme, with our assumed baseline workload based on historic averages. Based on these historic averages 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.

This year, the mains workload we delivered had a lower service density than last year and therefore meant we delivered an 8% lower volume of Tier 1 service interventions. In total, we have undertaken 427,487 service interventions over the first three years of RIIO-GD2, with our London and West Midlands networks seeing service interventions at around 16% under the assumed baseline workload.

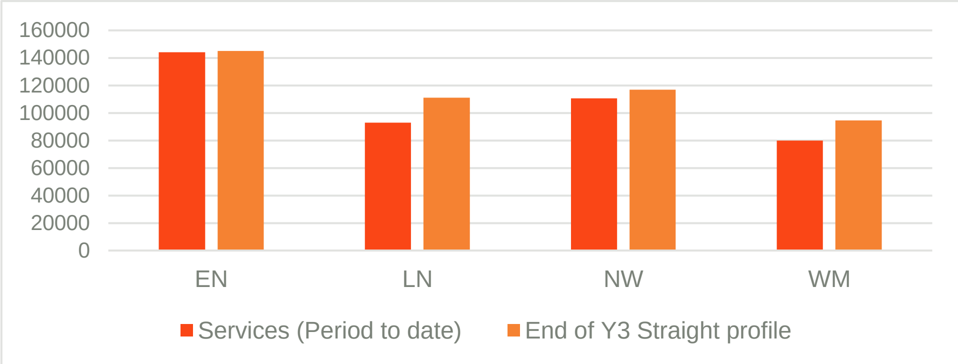


Figure 5.3: Tier 1 Services PCD – Cumulative interventions vs. straight profile

At the end of the price control our allowances under both the Tier 1 mains and services PCDs will be adjusted 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.

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 the nearby buildings, and particularly their populations.

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

For RIIO-GD2 we proposed to replace 9.9km and four specific governors across the route. This was set as a bespoke Price Control Deliverable for Cadent. 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 2023/24, we decommissioned a further 1.8km and commissioned 4.1km of LMP main with the remaining governor projects expected to be delivered in year 4 and 5. Overall, we have replaced 9.6km of LMP mains over the first three years of RIIO-GD2, representing 96% of the PCD target, and completed two of the four planned Governor interventions. We are therefore confident that we will achieve the targets in full before the end of the period.

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 by the end of the period.

We have three categories of work that we agreed to deliver against this PCD; Capacity upgrades (>7 bar) at 13 sites, Metering systems replaced at 18 Offtake sites, and the replacement of interim PE pipes within the service tunnel at Lowestoft Harbour. We completed the Lowestoft Harbour project, replacing the interim PE pipe with a permanent 8” steel pipe, in the first year of RIIO-GD2.

Of the 13 Capacity Upgrade projects:

- One project (Hambleton PRI) is no longer required due to a cancellation of a customer request and therefore no further need to reinforce the site;
- One project has been completed in 2023/24;
- Three projects are at construction stage and expect to be completed in 2024/25;
- Six projects are progressing towards or are already at the stage of detailed design and plan to be delivered in 2025/26;
- One project is at the conceptual design stage.
- One project has had a feasibility study completed.

Of the 18 Offtake sites requiring metering systems to be replaced:

- Three projects have been completed in 2023/24;
- Six projects are either progressing towards or are already at construction stage, with completion expected in 2024/25;
- One project has had a detailed design completed and the construction tender is currently under evaluation.
- Eight projects are at the stage of detailed design, and plan to be delivered in 2025/26;

With the exception of Hambleton PRI Capacity upgrade (which is no longer required), we expect to complete all Capital projects by the end of RIIO-GD2.

High Rise Building Plans

For RIIO-GD2 Ofgem introduced a bespoke (i.e., Cadent-only) reputational Output Delivery Incentive to develop building plans for all our high-rise buildings by the end of the period.

We have continued to make great progress since last year, and over the first three years of RIIO-GD2, at a Cadent level, we have developed 1,934 plans, which is 13% higher than the target for the end of year three (1,709). To achieve this, we have continued to refine the required processes, systems, and resources, while also continuing to actively engage building owners and key stakeholders to build on the information contained within the plans.

Our Eastern, West Midlands and London Networks have seen a strong performance in volumes, with London and Eastern significantly exceeding their phased targets, allowing for a downward adjustment on volumes for the remaining two years of RIIO-GD2. Our North West Network saw a small shortfall of five plans compared to its end of year three target. However, this shortfall has already been delivered in the new performance year and that we expect to deliver our year four target in addition to this.

We are confident that our period targets will be achieved across all networks before the end of the period, and we are aware that other GDNs are now looking at improving their MOBs data and records, with our approach providing the blueprint across the industry.

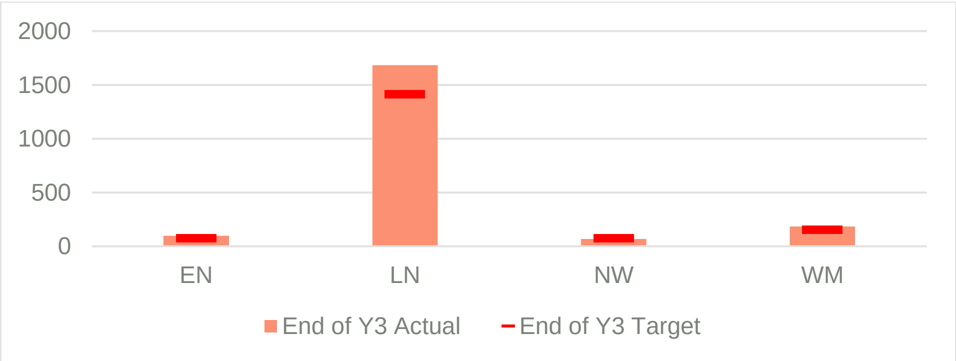


Figure 5.4: High Rise Building Plans – 21/22, 22/23 and 23/24 performance

Cyber and IT

Cyber Resilience OT and IT

Cyber Security continues to be a priority at Cadent with regular engagement with all stakeholders including Ofgem, DESNZ and the National Cyber Security Centre (NCSC). We have continued to improve our Cyber and Physical Security controls against our improvement plans and strategy.

Through the RIIO-GD2 framework we currently have a number of baseline Price Control Deliverables (PCD) aimed at enhancing our overall cyber resilience strategy, and that complements our requirements under the Network and Information Systems (NIS) Regulations for both Information Technology (IT) and Operational Technology (OT) respectively, with allowances granted to us for investing in the latter over the first three years of RIIO-GD2.

The purpose of these deliverables is to:

- Demonstrate activities implemented that contribute to increased cyber resilience,
- Invest in technology to improve our cyber resilience (especially in relation to OT)
- Mitigate associated risks, including changes to level of risk and the cyber threat landscape,
- Improve our status with respect to Cyber Assessment Framework (CAF) outcomes on our network and information systems.

As cyber threats have significantly increased on a global scale over the last few years, we continue to closely monitor threats, assessing risks, and adapting our resilience plans in this area to ensure customer data and our critical systems remain safe and secure.

Being part of the Critical National Infrastructure (CNI) means that technology is core to our operations, and we understand the impact system failures can have on customers and businesses.

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; and we have utilised the re-opener windows in January 2023 to apply for additional funding to help us achieve this. This resulted in additional PCDs.

Due to this work being critical and therefore sensitive in nature, we will continue to provide detailed progress reports to Ofgem in line with the reporting requirements set out in our licence.

Data and Digitalisation

Our Digitalisation Strategy and Action Plan provides visibility to our stakeholders on the progress we are making in designing and building digital products and solutions.

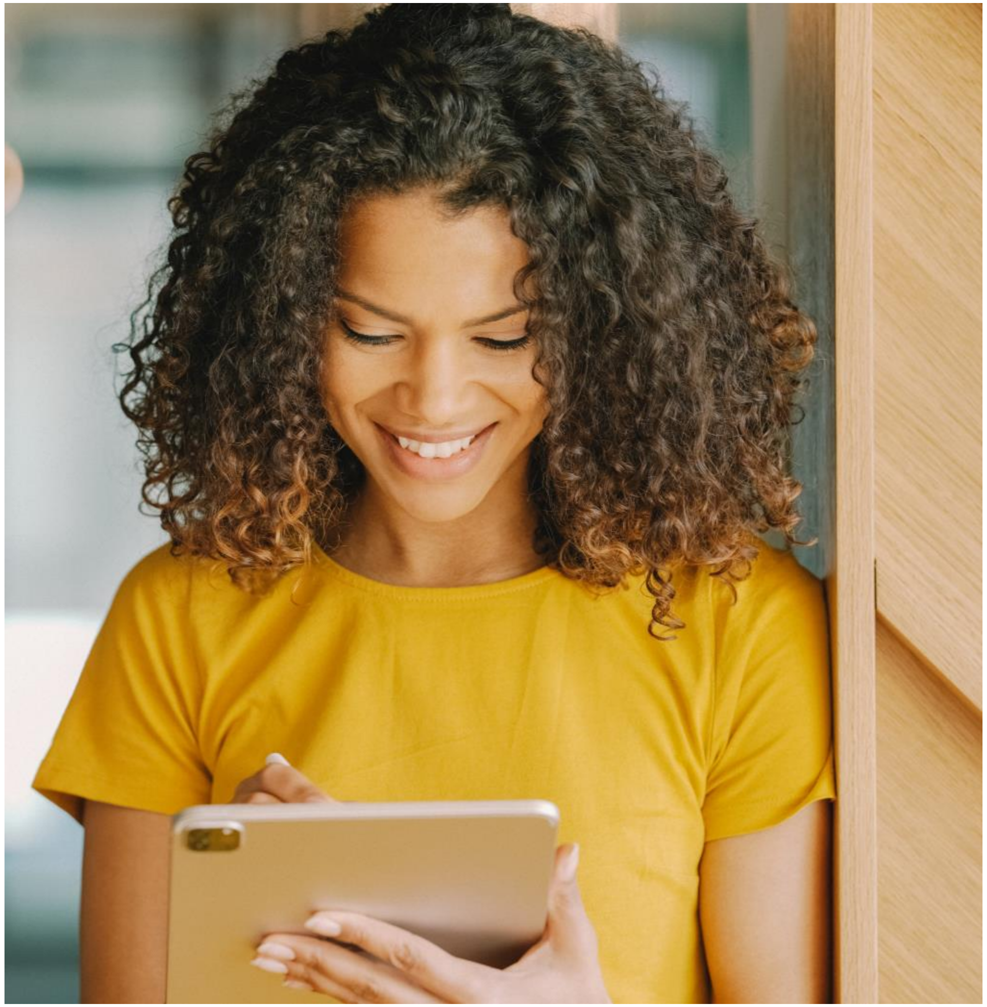
Using feedback we received from Ofgem, we have published the latest version of our Brilliant Basics strategy, which is designed to simplify everything relating to data and digitalisation. We have delivered changes to provide:

- Enriched processes that allow stakeholders to request and receive Cadent data that are of public interest and support our net zero ambition with improved data triage processes, release of data dictionaries and metadata expressed in Dublin Core standard.
- We have laid the foundations for our Open Data Portal (conceptual architecture design and functional and non-functional requirements for the solution).
- A new network visualisation tool that supports the journey to net zero and a geographical model that is being shared with Local Authorities to inform their future energy network planning.
- Progressing an innovation project around detecting leakage and becoming more proactive in this approach; these updates can be found in our Digitalisation Action Plan.

Within our IT department, we have progressed our Agile Transformation, focusing on transparency of change and iterative ways of delivering products and services. We have introduced a product centric model and constructed Data ART (Agile

Release Train) that takes the responsibility for data products and data platforms to allow us to deliver our target data architecture and ensures we are moving towards common data models and standardised ways of describing our data with appropriate attention given to our metadata and data quality.

Through the year, we continued chairing a Digitalisation Working Group and our Data Governance Group to ensure there was senior oversight of new initiatives and appropriate coordination for the delivery of change.



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

Customer service

Customer Satisfaction

We have continued to make significant CSAT improvements in 2023/24 with our networks on average improving at an aggregate level, achieving a score of 9.25 out of 10 (0.05 increase in score vs. last year), representing our highest ever score since the introduction of the incentive at the start of RIIO-GD1. Unvalidated GDN League Tables show that our Eastern Network is in joint first position at an aggregate level, which demonstrates the significant improvements we have made compared to RIIO-GD1. We are particularly proud of our performance in our connections service where we expect our networks to be positioned as the leading performers in the sector.

Network	22/23	23/24	Movement from last year
EN	9.21	9.33	+0.12
LN	9.05	9.16	+0.11
NW	9.27	9.25	-0.02
WM	9.20	9.19	-0.01

Table 5.5: Average CSAT scores by network across all surveys

Emergency response and repair

Network	22/23	23/24	Movement from last year
EN	9.57	9.67	+0.11
LN	9.39	9.55	+0.16
NW	9.58	9.67	+0.09
WM	9.56	9.63	+0.07

Table 5.6: ER&R CSAT scores by network

Customers value a rapid response to gas emergencies and quick repairs, and we have delivered improved satisfaction scores in this area for several years. Our 2023/24 plans remained centred on learning from key customer insights with a specific focus on reducing disruption from our works. This includes reducing the frequency and length of gas supply interruptions, and ensuring we complete reinstatement works efficiently and to a high standard. Working with our new contract partners and enhancing our ways of working for reinstatement works has delivered significant improvements in our next day response for customers.

As a result, ER&R CSAT scores have improved in all four networks year on year and by an average of +0.11 compared to last year. We achieved an average of 9.6 out of 10 at a Cadent level, and significantly exceeded our regulatory target of 9.37 in all four networks.

Connections

Network	22/23	23/24	Movement from last year
EN	9.18	9.27	+0.09
LN	9.15	9.24	+0.08
NW	9.19	9.16	-0.04
WM	9.27	9.08	-0.19

Table 5.7: Connections CSAT scores by network

We have continued to see significant benefits from the transfer of our Connections services into a direct workforce operation, aligning delivery and customer experience outcomes to our local area model which encompasses 28 local areas across our networks. By maintaining our focus on all the key customer touchpoints, reducing lead times for works and continued investment in simplifying our application processes, we have driven customer satisfaction to record levels.

As a result, we achieved an average Connections CSAT score of 9.2 out of 10, significantly exceeding our regulatory target of 8.38 in all four networks. The Unvalidated GDN League Tables show that three of our networks are in the top four positions for the Connections service, with our Eastern Network in the top position.

Planned work

Network	22/23	23/24	Movement from last year
EN	8.88	9.05	+0.17
LN	8.60	8.68	+0.08
NW	9.04	8.91	-0.13
WM	8.76	8.85	+0.09

Table 5.8: Planned work CSAT scores by network

In 2023/24, we entered a second year with new contractual and operating arrangements for our planned work activity. Our wider customer strategy and delivery model places greater emphasis on network and local level accountability, which means tailoring experiences to our local communities.

We have continued to deliver an excellent service to customers, achieving an average score of 8.9, exceeding the regulatory target of 8.51 in all four networks

We have focussed on the key drivers of satisfaction during Planned Works, including customer communication, planning and quality and timely reinstatement. This has led to three of our networks achieving scores of 8.9 out of 10 or more. Whilst scores in our London Network improved compared to last year (+0.08), within the year we decided to make some changes to our operating model to ensure we had a more direct and proactive impact on the overall customer experience. We have already seen the benefits of these changes in higher scores and expect these to be embedded in the next regulatory year.

Complaints handling

When things do go wrong, we know customers want issues resolving quickly and without any hassle. All our networks have performed significantly beyond the minimum standard of five against the complaint's metric and resolved more than 89% of complaints within the first working day. Our continued focus to respond and resolve complaints has improved an already industry-leading level of performance. This is driven by utilising and empowering local teams to resolve complaints directly, using their knowledge, expertise and experience to the satisfaction of our customers.

Network	22/23	23/24	Movement from last year
EN	1.50	1.09	-0.41
LN	1.20	1.03	-0.17
NW	1.36	1.84	+0.48
WM	1.09	1.34	+0.25

Table 5.9: Complaints Metric scores by network

Network	22/23	23/24	Movement from last year
EN	87.8%	90.4%	+2.6%
LN	89.4%	92.1%	+2.6%
NW	89.3%	85.7%	-3.6%
WM	89.5%	87.5%	-2.0%

Table 5.10: D+1 Resolution by network

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). In 2023/24 we exceeded the 90% standard for all GSOP across all our networks.

GSOP	EN	LN	NW	WM
GSOP 4: Provision of standard quotation	99.5%	99.1%	99.3%	99.5%
GSOP 5: Provision of non-standard quotation (≤275 kWh per hour)	99.4%	98.8%	98.5%	98.8%
GSOP 6: Provision of non-standard quotation (>275 kWh per hour)	98.5%	93.8%	96.1%	94.8%
GSOP 8: Response to land enquiries	99.3%	99.4%	98.9%	99.7%
GSOP 9/10: Provision of a date for starting and finishing work	99.5%	98.2%	97.4%	98.8%
GSOP 11: Completing work in the agreed timescales	96.4%	97.3%	96.5%	95.3%

Table 5.11: Connections GSOP performance against 90% standard by network

Keeping the energy flowing

Unplanned interruptions

For RIIO-GD2, Ofgem introduced a financial output delivery incentive to ensure that GDNs manage any unplanned interruptions to customers' gas supplies in a timely manner and that customers are protected from any deterioration in performance. Cadent has two Unplanned Interruption measures, one measuring the average duration of unplanned interruptions in MOBs and another measuring the same for all other buildings (i.e. non-MOBs). For each measure, Ofgem set a Minimum Performance Level and an Excessive Deterioration Level for each network, with a financial penalty increasing between these levels.

Unplanned interruptions in Non-MOBs performance

In 2023/24, all our networks outperformed the minimum performance level, with volumes and durations decreasing across all networks except for North West, which experienced a small increase in average duration (from 9 hours to 9.8 hours) due to an increase the volume of unplanned interruptions. London has seen the largest decrease in average duration with a 10.2% decrease from 12.9 hours to 11.5 hours.

Network	Minimum performance level	Excessive deterioration level	2022/23 performance	2023/24 performance
EN	12	17	6.6	6.5
LN	14	19	12.9	11.5
NW	14	19	9	9.8
WM	13	18	8	7.9

Table 5.12: Non-MOBs Unplanned Interruptions Average Duration (Hours)

Unplanned interruptions in MOBs

In 2023/24, all our networks performed better than the minimum performance level. The average duration for a MOBs Unplanned Interruptions reduced in LN and NW compared to last year. Whilst the average durations increased in EN and WM, attributable to a small number of complex projects lasting for an extended duration of time, performance remains significantly lower than the Minimum Performance Level.

Network	Minimum performance level	Excessive deterioration level	2022/23 performance	2023/24 performance
EN	518	718	106	290
LN	601	801	521	436
NW	601	801	81	83
WM	601	801	94	101

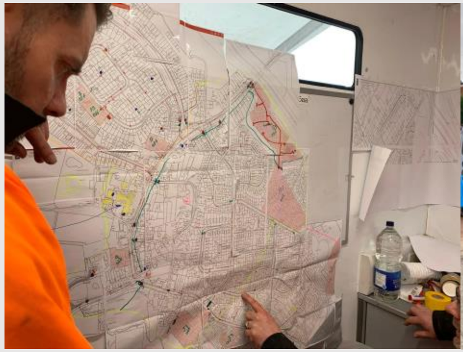
Table 5.13: MOBs Unplanned Interruptions Average Duration (Hours)

Case study: "A first-class effort" in Ratby and Kirby Muxloe

In the early hours of 30th January 2024, a challenging water ingress incident saw over 100,000 litres of water infiltrating our East Midlands gas network. Of the 3,675 properties within the affected area, 2,715 had their gas supply impacted. To recommission supplies in the most efficient manner, we adopted a zonal and phased approach, isolating parts of the network section by section.

The incident saw a monumental effort across all of those involved and at the peak of the incident, over 200 Cadent engineers were on site. We also had a large team available to support customers, including more than 30 members of Search & Rescue, the Red Cross and Leicestershire County Council. Consistent communication remained across multiple online and onsite platforms, with fan heaters and hot plates available to those in need. We also made the decision to pay compensation directly to each affected bill payer once their gas supply had been restored.

By 7th February 2024, the incident was closed. The overall response was very effective, and we received great praise from customers and regional and national media. Local MP Dr Luke Evans posted a 'Tik Tok' video emphasising the fantastic work that the Cadent Team had carried out on site. https://vm.tiktok.com/ZGeSQkk4f/.



Collaborative Streetworks

The Collaborative Streetworks financial incentive was introduced in RIIO-GD2 for networks that operate in Greater London (i.e., Cadent and SGN). In 2023/24 we delivered 80 collaborative streetworks projects which saved 602 days of disruption, of these, seven met the criteria for the incentive which saved 110 days of disruption. Whilst there is a fixed incentive reward for each project delivered, the social value generated for each completed project is far greater, benefiting our customers and wider society.

All seven projects were completed in our London Network, which covers a much greater proportion of Greater London for which the incentive applies. The opportunity in our Eastern network is much smaller as only a small proportion of the network covers the Greater London region (8.6%), and whilst we pursued several opportunities to collaborate, the projects did not follow through to delivery in 2023/24.

The table below summarises the incentive-applicable collaborative streetworks projects completed in 2023/24 and the estimated days saved in reduced disruption.

Project name	Collaborative partners	Estimated number of days saved
Bromley High Street	Thames Water	18
Parliament Hill	SuDs	21
Belton Road	Thames Water	29
Lower Richmond Road	TFL	31
Ratcliffe Cross Street	London Borough of Tower Hamlets	3
Goswell Road	London Borough of Islington	3
Kingly Court	UKPN	5

Table 5.14: 2023/24 Collaborative streetworks projects delivered

The Eastern Network streetworks team continue to attend the Greater London Authority (GLA) Steering Group and Sponsors meeting to generate opportunities for collaboration and have introduced a monthly forum with Thames water to identify feasible schemes. After recent meetings with the GLA, there are opportunities identified in Haringey and Enfield that may lead to the successful delivery of projects in Year 4 & 5.

We continue to utilise the monitoring and evaluation (M&E) tool to support the delivery of projects with local authorities, providing a pre-emptive look at the associated benefits, and during the end of projects to track the benefits of each project.

The 'collaborate on everything' model that we started in year one continues to be successful and we have engaged with a variety of organisations and workstreams. This year has seen the successful delivery of the first Sustainable Drainage System (SUDS) collaborative scheme which will support the GLA in delivering future SUDS works. We have also, for the second year running, been awarded (alongside Thames and Brent Council) the accolade "Streetworks Collaboration of the Year"- this time for our works in Brent which encompassed two projects.

All our incentive-applicable projects were presented to the GLA for independent approval – this was detailed in our new process flow report which we completed throughout the year and checked regularly. Further information on each of the projects delivered has been published on the ENA Smarter Networks Portal.

Supporting customers in vulnerable situations

Vulnerability and Carbon Monoxide Allowance (VCMA)

Our social impact forms a key part of how we do what we do – making life easier, fairer, and greener for our customers and colleagues. The past three years continued to show how vulnerable society is, with inflation and rising energy bills impacting households across the UK.

Given this environment, we are proud to be leading the sector with our activities to support vulnerability and social purpose. We have significantly scaled up our support to maximise our impact with groundbreaking initiatives such as Centres for Warmth which has been vital to the communities we serve. We have focussed our efforts and funding to support more customers in fuel poverty. This revised approach allowed an increase in the number of cost of living and fuel poverty focused projects which we could mobilise quickly to ensure that the maximum support could be provided.

Over the first three years of RIIO-GD2, we have spent £23.1m (£18/19) of the VCMA. In the last 12 months alone, we have delivered more than 100 separate initiatives and invested £13.9m (£18/19), creating social benefits of c.£1bn over the RIIO-GD2 period to date. This investment has supported customers with a wide range of innovative and effective services to increase awareness of the dangers of Carbon Monoxide poisoning, reduce fuel poverty and identify individual needs and joining up services to meet these.

This year saw the repurposing of the Fuel Poor Network Extension Scheme (FPNES) which has enabled us to provide additional value for our customers. We were provided an additional £55m in funding to maximise the positive impact we can have. In 2023/24 we originally committed to spend £9.6m. However, we increased our forecast to £12.2m to allow for earlier mobilisation of our fuel poverty focused initiatives, with our actual spend being £13.9m.

The collaborative VCMA focus continues to be on large scale national projects and campaigns, whereas our individual company funding focuses more on local partnerships. We continue to have success with our local approach which has allowed us to reach customers most at need. Key initiatives such as Centres for Warmth, Mobile Warm Hubs, regional Citizens Advice partners, NPCC, YMCA and other smaller partners and organisations signify this.

We expect to increase investment even further in the last two years of RIIO-GD2 and expect to invest our £85m VCMA allowance whilst continuing to deliver positive social return for each investment.

	21/22	22/23	23/24	24/25	25/26	Total
	Actual			Forecast		
Cadent specific fund	2.1	4.1	9.0	15.7	20.3	51.2
Collaborative fund	0.8	2.3	4.8	12.5	13.3	33.8
Total VCMA	**2.9**	**6.4**	**13.9**	**28.2**	**33.6**	**85.0**

Table 5.15: VCMA Actual and Forecast spend over RIIO-GD2 (18/19 prices)

Our vulnerability strategy is built around four key priority areas; Tackling fuel poverty, Carbon monoxide awareness, identifying individual needs and joining up services, and Going beyond the meter to never leave a customer vulnerable without gas. Our 2023/24 VCMA Annual Report provides detail on how we have performed against these priority areas, however in the next sections we provide some insight, including performance against the consumer vulnerability reputational incentive measures.

Tackling fuel poverty

We are mindful that all our customers are facing challenges as a result of the increase in energy prices and inflation. We have worked hard to reach as far as we can by offering energy and income advice and investing in community level and household level interventions to provide practical advice and directly improve household energy efficiency. We focused our efforts on helping people across our communities to heat their homes more affordably. There are no signs of the fuel crisis becoming less of a factor, and we're overseeing over 70 individual projects with a combined value of over £10m (in 2023/24) which will deliver a further anticipated social return of well in excess of over £200m. Several of these initiatives focus on the provision of tailored, professional, face-to-face energy and income advice to families most in need. We offer this in people's homes, but we reach more households through our expanding network of Centres for Warmth to support local communities. These are unique to Cadent, where we fund professional resources to provide a range of financial and safeguarding support. We have established over 270 centres with 153 new Centres for Warmth this year, helping over 25,000 households this year. The average household has benefitted from an estimated saving of £2,500 as a result; resulting in at least £50m of benefit to some of the most vulnerable customers across our network.

Fuel Poor Network Extension Scheme (FPNES)

Last year, changes to the Energy Company Obligation (ECO) scheme reduced the amount of funding available to off-grid customers for first-time gas central heating (FTGCH). This subsequently resulted in Ofgem agreeing to re-allocate FPNES funding into the VCMA.

Following on from this, we have now brought the contract previously held with our FPNES delivery partner, Affordable Warmth Solutions (AWS), to an end.

In 2023/24 we delivered 63 Fuel Poor Connections and in total over the RIIO-GD2 period to date we have delivered 4,468, which equates to just over 70% of the five-year period target of 6,250.

Despite the changes to the FPNES and funding landscape, we remain committed to supporting off-grid fuel poor households through the FPNES, but as can be seen from this year's volume delivered, output figures are likely to remain at the lower end of the scale throughout the remainder of RIIO-GD2.

Network	FPNES connections delivered over RIIO-GD2	Period target	% Delivered vs. target	Cap	% Delivered vs. cap
EN	1753	2,050	86%	2,446	72%
LN	480	500	96%	639	75%
NW	1060	2,250	47%	1,909	56%
WM	1175	1,450	81%	2,003	59%
Cadent	4468	6,250	71%	6,997	64%

Table 5.16: RIIO-GD2 FPNES connections delivered vs. annual targets and cap

Carbon monoxide awareness

This year, we have introduced a new initiative called the CO ecosystem, which brings together utility companies, charities, and businesses outside of our sector, to seek ways in which we can deliver a more collaborative national education programme in the UK, such that our collective efforts go even further than they do today.

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 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 71, 030 customers that have been surveyed in 2023/24, we have seen an average increase in knowledge of 2.35 points (out of 10).

Our focus for 2023/24 is to continue to drive awareness of CO across networks with a focus on customers living in vulnerable situations in areas of deprivation.

	EN	LN	NW	WM	Cadent
Average score before	6.71	6.61	6.58	6.76	6.66
Average score after	9.08	8.92	8.95	9.10	9.01
Average score difference	2.37	2.30	2.37	2.35	2.35
No. of customers reached through CO awareness	753,314	392,792	519,178	402,161	2,067,445

Table 5.17: 2023/24 CO awareness survey scores and reach

Identifying individual needs and joining up services

Despite huge efforts to raise awareness of the Priority Services Register (PSR), and remove the stigma associated with the word 'vulnerability', we know that there are over a million of our customers who could be registered on the PSR, who are not. This is why we continue to engage with hundreds of thousands of our customers each year, to talk about the PSR and work with trusted partners to share this information with the communities they have developed trust with. We continue to explore new and innovative ways to share this information, considering the language we use, and the channels, used to communicate with our customers.

Vulnerability is ultimately transient and therefore the PSR will never be complete. This is why we invest in a range of industry leading data analytics, using multiple data sources to provide the most advanced and accurate view of customer needs, so we can target proactive measures to provide the necessary support packages.

Over the course of RIIO-GD2, we have had 2.8 million direct PSR conversations, making great progress against our commitment to have over 4 million conversations by the end of the period. We have also formed 140 strategic partnerships to help extend our reach and positive social impact.

Our BS ISO 22458 standard also holds us accountable to ensure that we are delivering positive outcomes and an inclusive service for customers living in vulnerable situations.

Our ongoing commitment to support customers in vulnerable situations is reflected in the scores provided by Priority Services Registered customers, who gave us an average of 9.35 out of 10. Our PSR customers scored us higher on average in all four of our networks compared to CSAT for all customers.

Network	PSR CSAT score	Difference vs. all customer CSAT
EN	9.41	+0.08
LN	9.17	+0.01
NW	9.44	+0.19
WM	9.35	+0.16
Cadent	9.35	+0.12

Table 5.18: Average PSR CSAT by network across all surveys:

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

Previously, we may have needed to switch off a customers' gas supply at the meter, leaving them safe but without heating or cooking facilities. Now through our specific services which include CO investigations, we can keep more customers on gas.

Along with undertaking these in home measures and interventions, all eligible customers are provided with energy efficiency and CO advice. Additionally, by working with our expert partners National Energy Action and Groundworks UK, we can refer customers to see if they are entitled to further income support or energy measures.

Personalising Welfare Facilities

Our provision of personalised welfare products and services has increased significantly from last year, with 51,283 customers benefiting in 2023/24; a 120% increase from 2022/23. These figures reflect the successful implementation of several initiatives and innovations being embedded across our processes by the Safeguarding Strategy Team.

At the start of the period, we set a target to support 164,250 customers and at the end of Year 3, we had achieved roughly half of that target. Given the significant ramp up in Year 3 and an expected further ramp up in years 4 and 5, we anticipate that we will support more than 200,000 customers in total, demonstrating a significant outperformance. Despite the over-delivery in terms of customers supported, we will underspend against the £12.4m PCD allowance, as a result of customer demands. Whereas we had anticipated a high uptake in more expensive products / services such as alternative heating and temporary accommodation, customers have preferred less expensive alternatives such as food vouchers and products such as blankets.

	EN	LN	NW	WM	Cadent
Provisions to PSR customers	11,021	2,846	8,455	3,667	**25,989**
Provisions to non-PSR customers	7,536	4,164	8,400	5,194	**25,294**
Total	**18,557**	**7,010**	**16,855**	**8,861**	**51,283**

Table 5.19: Number of personalised welfare facilities provided in 2023/24

Significant developments have been made this financial year to grow the positive impacts of Additional Welfare Products (AWP) when PSR customers and non-PSR (or those who are in a vulnerable situation) are off-gas due to our works.

We have continued to roll-out of the Additional Welfare Decision Tool (AWDT) across our operational teams. We are using this innovative tool to support the commitment of providing AWPs by specific customer need to households in a gas-off situation. The second development phase of this tool has started and will improve the user interface and integration with our systems.

We have introduced a consistent process for 'on-van stock' across all networks via the provision of a holdall with relevant initial stock on-day provisions plus a simple re-ordering process, to keep this AWP 'on-van stock' replenished. For more substantial items, we are working with a new logistics vendor (Simply Thank You) to significantly increasing the extent of AWP options we can provide. This is based on a next day delivery model for AWP items which are suitable to this type of delivery (i.e. slow cookers). It is supported via an on-line ordering tool utilising the Cadent One Hub already used for Food/e-vouchers. This began as a 5-days per week delivery model, but we enhanced this in Q3 to become a 7-day delivery model in response to demand from our operational teams to ensure the service was available on weekends.

System, process and logistics developments have improved our capability to capture and report of AWP provision meaning that we have been able to step away from assumptions previously used and offer a high level of confidence in the figures shared. We also introduced a process to reuse/rehome AWPs to the homelessness charity Emmaus, should recipients, post the gas outage not wish to keep them. Emmaus have used their retail charity shops to resell the items and also provided some of the items to the individuals they support.

In addition to the developments this year, we have continued to see the use of our food vouchers (and e-voucher) schemes prove to be highly popular with customers. Whilst we offer alternative cooking equipment, many customers prefer vouchers as they can avoid the additional costs of running the alternative cooking equipment and, knowing that an outage will be relatively short, do not wish to be left with the additional equipment. We have added the option for customers to request Parsley Box microwaveable meals for those who are in more rural areas or those who prefer a non-digital hot food option. This delivery contains prepared and healthy meals which are easy to heat in a microwave and feedback has been positive so far.

The development of a process across all Cadent networks to provide customers who were left electrical AWPs once their gas has been restored, to be contacted, offered, and paid respective running cost payments to support the cost-of-living crisis.

Tackling Climate Change and improving the environment

Decarbonising our business operations

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 and contributes to global warming.

Across our four networks shrinkage gas losses were reduced by 35.6 GWh (3.4%) with reductions achieved in all four of our networks. Based on an assumed typical annual consumption of 12,500 kWh, this reduction is equivalent to the gas usage of approximately 2,850 domestic houses.

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 41.5GWh of the overall performance.

We projected our average system pressures to be flat over the course of RIIO-GD2, however operational impacts or exogenous factors, for example weather, can impact them. We experienced higher average system pressures in 23/24 when compared with 22/23 and this contributed a 7.5 GWh increase in shrinkage. Pressure increases are sometimes required to facilitate network reinforcement activities or as part of our ongoing mains replacement programme, to ensure continued security of supply throughout the region during this workload delivery. We have seen Eastern and North West network pressures increase compared to 22/23, however we are expecting reductions in these over the coming twelve months.

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 Monoethylene Glycol Saturation (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. In 2023/24 our overall MEG saturation decreased from 40.0% to 35.9% compared to 2022/23, as a result of this our emissions increased by 6.2GWh against the previous year.

	EN	LN	NW	WM	Cadent
2022/23 Shrinkage Outturn (GWH)	370.4	183.9	256.2	235.3	1045.8
LP / MP Mains Replacement	(10.5)	(4.9)	(6.9)	(6.0)	(28.4)
Service Relays	(4.5)	(3.2)	(3.3)	(2.2)	(13.2)
Average System Pressure (ASP)	3.7	0.2	3.1	0.5	7.5
Monoethylene Glycol Saturation (MEG)	0.4	0.8	1.8	3.2	6.2
Interference Damages	(1.7)	(0.1)	(1.2)	(0.2)	(3.1)
Own Use Gas	(0.9)	(0.5)	(0.7)	(0.5)	(2.6)
Theft of Gas	(1.6)	(0.8)	(1.2)	(0.9)	(4.5)
AGI Asset Numbers	(0.0)	0.1	(0.1)	(0.2)	(0.2)
2023/24 Shrinkage Outturn (GWH)	355.7	175.5	248.5	230.4	1010.2
Year on year reduction (GWH)	**(14.7)**	**(8.4)**	**(7.6)**	**(4.9)**	**(35.6)**
% Reduction	**-4.0%**	**-4.5%**	**-3.0%**	**-2.1%**	**-3.4%**

Table 5.20: 2023/24 Overall Shrinkage performance

Since 2012/13, our Shrinkage volumes have reduced by 501.9GWh (33.2%) compared to our opening baselines. This is the equivalent to the gas consumption of approximately 40,150 homes. The graph below shows our performance compared to baselines and our forecast performance over the remaining years of RIIO-GD2.

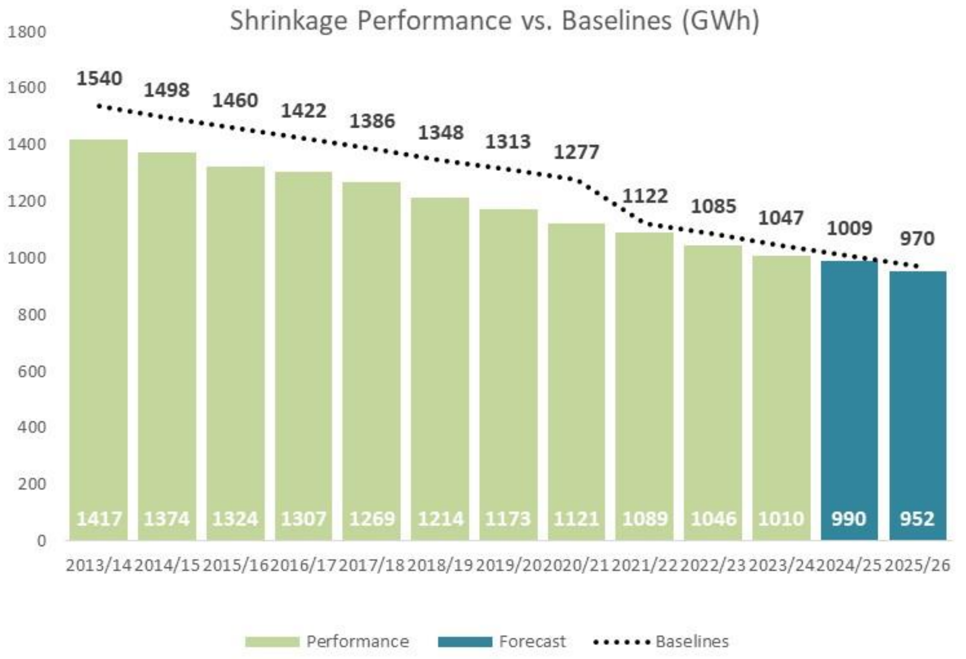


Figure 5.21: Shrinkage Performance vs. Baselines (GWh) 23/24

Over the duration of GD2, we have been leading a SIF project looking at how we can develop our shrinkage modelling further (the Digital Platform for Leakage analytics – DPLA). This is currently in the Beta Phase and will allow us to revolutionise both how we measure the impact of our network and to target more impactful interventions over and above mains replacement. (Further detail in the innovation chapter)

Zero emissions commercial fleet

Our RIIO-GD2 Environmental Action Plan included the ambition that we would demonstrate leadership within the sector in tackling climate change. As part of this ambition, we committed to having a zero emissions first responder vehicle fleet by the end of the RIIO-GD2 price control. Through the Commercial Fleet Price Control Deliverable (PCD), Ofgem provided us funding for the procurement of 999 electric vans (of varying sizes), for our FCOs, and the installation of 402 EV (Electric Vehicle) charging points across our four networks.

In 2023/24 we procured an additional 50 EVs, overcoming market and operational challenges in rolling out EVs to our FCOs, resulting in a total of 491 EVs procured over the RIIO-GD2 period to date, representing 49% of the PCD maximum.

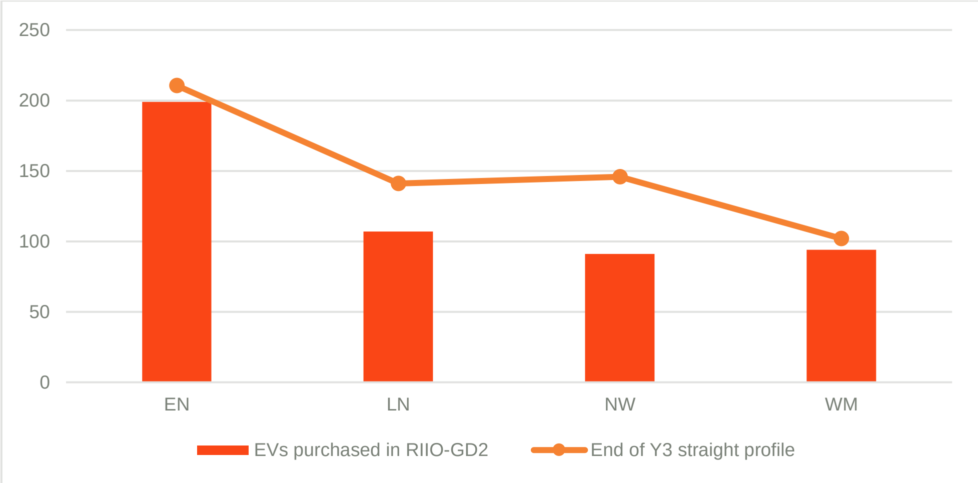


Figure 5.22: RIIO-GD2 Commercial EV Fleet purchased

	EV Charging Points installed in RIIO-GD2 to date	RIIO-GD2 PCD maximum	% installed vs. PCD maximum
EN	142	141	101%
LN	55	95	58%
NW	80	98	82%
WM	53	68	78%
Cadent	**330**	**402**	**82%**

Table 5.23: RIIO-GD2 EV Charging Points installed

In 2023/24 we also installed 105 EV charging points, resulting in a total of 330 charging points over the RIIO-GD2 period to date which represents 82% of the PCD maximum.

The conversion of our fleet to zero emission vehicles is done over time and at different points throughout the RIIO-GD2 period once a contract for a vehicle has ended and requires replacement. We have adopted a leasing strategy to purchase zero emission commercial vans as this generates the most value to Cadent and our customers, allowing us to keep pace with the progressing zero emission vehicle technology in the market.

Business Carbon Footprint

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

Our Environmental Action Plan (EAP) includes targets for reducing our BCF over RIIO-GD2 and individual environmental commitments to achieve this. In 2021/22 we published our first Annual Environmental Report (AER) that details our performance against our commitments in the EAP and how we are improving environmental reporting methodologies.

In 2023/24 we have seen a minor (0.2%) increase in our BCF (excluding shrinkage) from 2022/23. However, within this, we have expanded Scope 1 to include crown oil diesel usage and F-gas emissions and Scope 3 emissions to include waste. Conversely, total BCF including Shrinkage has seen a 2.9% decrease compared to 2022/23.

The total 2023/24 Scope 1 emissions were 22,913.16 tCO2e, a 10% decrease compared to 2022/23. The decrease was seen across own use gas, commercial fleet, and company car mileage, of which is largely attributable to ~50% of our operatives using electric vehicles and changes to HR policy with regards to business mileage on company cars. The only scope 1 category to increase was gas consumption from 852.19 to 869.79 tCO2e. Overall, there has been a gradual decrease in scope 1 emissions, even with the addition of Crown Oil and F-Gas.

2023/24 has seen our scope 2 emissions reduce by 6.1%, whereas our scope 3 emissions have increased by 9.1% when compared to the previous year. This is largely attributed to improved data collation and assurance for contractor vehicles, and the expansion to include waste reporting (367.41 tCO2e). Increases were seen across air and rail travel, private vehicle business use and PE Pipe emissions. Conversely, emissions associated with Hire Cars has decreased.

BCF (tCO2e)	22/23	23/24	Year on year % change
Scope 1 and 2 excl. shrinkage	30,005	27,180	-9.4%
Scope 1 and 2 incl. shrinkage	1,232,952	1,193,843	-3.3%
Scope 3	32,264	35,190	9.1%
BCF excl. shrinkage	62,268	62,370	0.2%
BCF incl. shrinkage	1,260,147	1,224,435	-2.8%
Emissions Target excl shrinkage (based on Business Plan)	46,526	42,683	

Table 5.24: BCF performance

Trusted to act for our communities

The Cadent Foundation

As the cost-of-living crisis continues into its third year, the projects we fund are unfortunately more critical than ever as statistics from the NEA show over 6 million people are currently living in fuel poverty. With spiralling demand on the charitable sector, we wanted to do more, but in a way that ensures our funding is going to where it can help the most. With this in mind, we have maintained our mission to tackle the root causes and impact of fuel poverty within our communities by finding sustainable solutions.

Our latest Impact Report details funding awarded throughout 2023, totalling over £3.3 million. Over the past year, the Cadent Foundation has supported over 35,000 people living in vulnerable situations and secured cost savings of over £1.1 million for families across the UK – through energy efficiency measures and advice. We added over 1,100 people to the Priority Services Register and helped over 5,800 homes become more energy efficient. Through our support and projects, over £4.4 million of debt has been managed or written off and we have achieved over £5.6 million financial gains from income maximisation support for people.

We want to amplify our social impact by enabling better access to services, driving innovative new solutions to help people make their homes easier and more affordable to heat, and developing best practice models which remove barriers and give organisations the flexibility to tackle fuel poverty in the ways that work best, ensuring we can get help to those who need it the most. As part of the Foundation's transition to focusing on fuel poverty, we launched our sector leading Live Impact Dashboard which shows in real time how our key strategic partnerships are helping to tackle fuel poverty. The data can be filtered to demonstrate the positive difference being made collectively and by individual projects for different locations and demographic groups.

Some of our key projects this year have included partnering with Green Doctors to provide over 10,000 vulnerable households with essential advice and energy-efficiency measures with approximately £1.2million in cost savings for these households. Our three-year partnership with the Trussell Trust has focused on providing financial advice and support to help people manage their debts and maximise their incomes and so far, we have supported over 11,000 households, raised over £8.1 million in financial gains and supported 34% who no longer need to use a food bank.

The achievements of 2023 have impacted a large portion of our community and have made vital progress to helping people stay warm and well, but there's no time to stand still. Looking ahead, fuel poverty shows no signs of abating - and our work to reduce its impact on our most vulnerable households isn't slowing either.

Employee volunteering

During our charity partnership with Emmaus, we have shown a continued commitment to volunteering efforts with our colleague's demonstrating true care and dedication to their chosen projects over the last twelve months. Through a range of employee engagement activities, our employees understand the contribution they can make and are actively encouraged to participate to the fullest extent they can. This has accumulated to an outstanding effort raising £349,243.91 through volunteering (744 hours), fundraising and donations.

A key highlight of a colleague survey we did this year was the high degree of pride so many of our colleagues feel working for Cadent. Many explained how Cadent's role within communities, including allowing individuals to contribute through volunteering, was a key factor behind that

This year, we totalled over 1,259 days of activity which covered 163 events, for 75 good causes, supporting an estimated 44,852 people. Over 1250 colleagues gave back to our communities through volunteering, with teams across the business coming together to work in schools, on community projects and adding much needed support on their doorstep.

A diverse and inclusive workplace

We are committed to an organisation design that will enable the achievement of our commitments for RIIO-GD2 and beyond, ensuring that we have the right people in the right place at the right time. We are driving a direct labour model while working closely with our supply partners to provide opportunity and growth for our colleagues.

Our ED&I Steering Group sets our strategic direction for ED&I, and the senior leaders who sit on the Steering Group sponsor and support our employee communities and our three ED&I working groups. These working groups aim to deliver real change and include members from all over our business and our communities, to ensure changes are positive for everyone. Our working groups drive progress in three areas: anti-racism, inclusive leadership and fair and inclusive processes.

We have several well-established employee communities covering gender, ethnicity and religion, disability, LGBTQ+ and military and this year we launched our new Men's Engagement Network to focus on important issues impacting men's physical and mental health and our Grief Awareness group to support colleagues to dealing with grief.

A culture of continuous improvement regarding inclusion has seen our new-starter onboarding updated to ensure new colleagues are aware of our employee communities.

Cadent's key achievements on ED&I in 2023/24

Shortlisted at the Menopause Awards:

Alongside our Menopause Friendly accreditation and continued sector leading work, we were also shortlisted in the Menopause Friendly Employer of the Year category at the Menopause awards.

Recognised for Race Equality:

Awarded Race Equality Matters Bronze Trailblazer status following the work we have done and continue to do to become an Anti-Racist employer.

Women in Cadent Recognition:

Our Women in Cadent community was also shortlisted for the Outstanding Women's Network category at the British Diversity Awards.

We are proud to be:

- Armed Forces Covenant Employers Recognition Scheme Gold Award
- Disability Confident Leader
- Lexxic Neurodiversity Smart Committed
- Menopause Friendly and Fertility Friendly Employer
- Bronze Race Equality Trailblazer

fertility friendly employer.

RACE EQUALITY MATTERS BRONZE TRAIL BLAZER Valid Until July 2025

CERTIFICATE OF ACCREDITATION Menopause Friendly Employer Cadent

Neurodiversity Smart Committed Lexxic

6. Innovation

We are committed to deploying and supporting innovation across our footprint. Our innovation projects support the UK's energy transition to net zero and support our customers in vulnerable situations. Furthermore, our localised operating model continues to improve our operational efficiency.

We currently have three allowances to be drawn upon from an innovation perspective including:

- The Strategic Innovation Fund (SIF)
- The Network Innovation Allowance (NIA)
- The Net Zero Development funds (as explored below).

We have outlined below the key areas and projects which have utilised these funding mechanisms to enforce innovation across our networks.

We also explain the progress we have made on the Hynet Front-End Engineering Design and how we are continuously supporting industry, transport and power generation sectors.

The Strategic Innovation Fund (SIF)

The Strategic Innovation Fund (SIF) is designed to drive the innovation required to equip the gas network for a low-carbon future. 2023/24 was the third year of Strategic Innovation Fund (SIF) under RIIO-GD2. Over the last 12 months, we have invested £1.6m (£18/19) on two projects; Digital Platform for Leakage Analytics (DPLA) (Beta phase), and Digital Inspector (Discovery and Alpha phases).

Digital Platform Leakage Analytics (DPLA)

Drastically reducing leakage across gas infrastructure is a global challenge that must be addressed to achieve the Global Methane Pledge and Net Zero targets by 2030 and 2050, respectively. Currently, GDN emission reporting requirements, provide only static, modelled values of total gas leakage, not identifying actual leak locations or volumes. The DPLA is an innovative approach to utilise digital technology and data to provide an accurate view of leakage across our gas network. This is expected to enable efficient operational and investment decisions to reduce leakage, improve network safety and reduce customer bills.

As we progress through the Beta phase of the project, as lead partner, we have been working collaboratively with Guidehouse, NGGT, SGN, NGN and WWU to ensure successful roll-out of the project. Whilst in the first instance the ambition of the DPLA was to address gas leakage, the use cases have now expanded into a non-mutually exclusive set of regulatory, operational, and business use cases.

We are currently working to influence the future regulatory landscape to allow DPLA implementation in the RIIO-GD3 price control, emphasising the notable benefits and importance of moving to an observed method of leakage detection. It has been estimated, in a 10 year period, the DPLA platform could facilitate up to a 58% reduction in methane emissions from pipes and AGIs, supporting the government priority to tackle methane emissions as a Participant of the Global Methane Pledge.

DPLA
DIGITAL PLATFORM FOR LEAKAGE ANALYTICS

Digital Inspector

The 'Digital Inspector' will provide a complete ecosystem for monitoring and managing welding. The technology will provide real-time information on the fabrication progress across multiple sites, live compliance to specifications and codes, to enable remote digital inspection of all welding parameters. The accurate and secure data collected by the Digital Inspector will be hugely valuable for multiple companies; with the data collected easily transferred into a pipeline operator's digital Pipeline Integrity Management System (PIMS).

Network Innovation Allowance (NIA)

The Network Innovation Allowance (NIA) is intended to fund projects with the intention of supporting both customers in vulnerable situations and the Whole Energy System Transition. 2023/24 was the third year of Network Innovation Allowance (NIA) funding under RIIO-GD2 and over the last 12 months we have invested over £4.21 million (£18/19) through 34 projects.

Nine of our NIA projects have supported customers living in vulnerable situations. Below outlines some examples of the work we are currently committed to.

Low Power Hot Water

The project commenced in April 2022 alongside Haydale Ltd, with the initial phase completed in November 2023. The project aimed to find an alternative solution to the hot water heating appliances provided when gas supply is interrupted for PSR customers, allowing them to keep warm, wash, and live independently, in an affordable manner.

The project successfully designed two 3-D prototypes to be used in the kitchen and the bathroom. The prototypes are now going through a series of modifications and improvements to ensure the customer receives the anticipated benefits.

With the success of the initial developments, we are now pursuing a further phase of the project which involves creating two workable prototypes that could be used in an operational environment.

Easy Assist Remote Actuation

The project follows on from the EasyAssist™ Emergency Control Valve (ECV) project, which enabled customers to press a button to close the ECV rather than turn the handle. The Remote Actuation project builds on this, allowing gas meters in inaccessible locations to be isolated by installing a push button attached to a cable.

The project commenced in November 2022 and in the last year, we have completed the Alpha phase of the project which involved building Alphas units and testing them for activities such as thermal triggering, leak tightness, button trigger force and button trigger endurance. In January 2024, the Beta stage commenced, and in the early stages it was established that the initial distance (2m) would not be possible due to the inconsistencies of results when compared to 1m cable. Following discussions and further testing the project agreed that 1m distance would be optimal and suitable.

The project has since been extended and we now expect to commence in early Autumn of 2024.

Easy Key

We have been working alongside Oxford Gas Products (OGP) to design a new type of gas meter box called the 'Easy Key'. Feedback maintained that those living with limited strength, dexterity and mobility find it difficult to use their standard British Standard gas meter box key and access their ECV. Hence, the key is designed to fit over the existing meter box key location to improve functionality and ergonomics to ensure the customer can access their ECV or meter installation quickly and reliably in an emergency.

The protype has been finalised and onsite trials are set to commence Summer 2024.

Supporting the transition to Net Zero

Over the course of the year, 25 projects utilised our NIA allowance in support of the whole system net zero transition. 12 of these projects commenced in 2022/23 and have since been completed, and 13 were new projects, with some continuing into 2024/25.

As the lead of the End User Safety Evidence (EUSE) Working Group, focused on 100% Hydrogen End User Safety, we have been working collaboratively with involved industry Stakeholders to drive forward the programme of work. When initiated in 2022/23, the programme originally consisted of 10 research projects, funded under NIA, focusing on hydrogen applications downstream of the ECV. The research was required to provide critical evidence to support the Hydrogen Village Trial and future Heat Policy decision. In the absence of a village trial, the evidence has become even more critical in informing the HSE's Comprehensive Formal Assessment on the use of 100% hydrogen, which will impact the policy decision expected in 2026.

In 2023/24, learnings from early research projects and inputs from other activities across the Hydrogen Heating Programme (HHP) have brought about a need for new research projects to be initiated under the EUSE programme. The projects Cadent have led on under this programme are as followed:

- Dispersion of Helium Releases in Domestic Properties (NIA_CAD0097)
- End User Behaviour – Impact on Safety (NIA_CAD0083)
- Hydrogen Conversion Strategy – Pipework (NIA_CAD0081)
- Use of Automatic Isolation Valve (AIV) Systems with Hydrogen – AIVs in LP and MP Services (NIA_CAD0082)
- Implications of Hydrogen Purity (NIA_CAD0084)
- HVT Appliance Development Business Case (NIA_CAD0090)

- HVT Appliance Development Programme – Phase 1 (NIA_CAD0100)
- Hydrogen Technical and Safety Case for Domestic Heat (NIA_CAD0091)
- Great Britain Hydrogen Distribution QRA (NIA_CAD0096)
- Effect of Hydrogen on Cast Iron Assets (NIA_CAD0094)
- IGEM Downstream Hydrogen Standards Development (NIA_CAD0101)
- Customer Demand Profiling for Hydrogen Networks (NIA_CAD0099)
- European Pipeline Research Group (EPRG) (NIA_NGGT0,170)
- Risk Methodologies (NIA_NGGT0172)
- PRCI (NIA_NGGT0171)

Further details of NIA projects can be found in our RIIO-GD2 Year 3 Innovation Report (which will be published at the end of July)

Net Zero Development Allowances

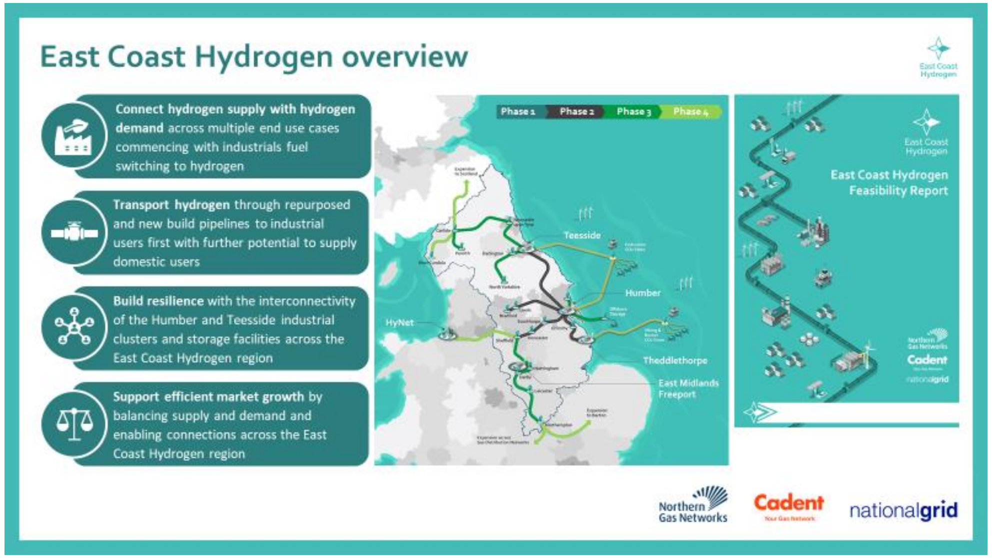
Under RIIO-GD2, Ofgem have included three funding provisions to support net zero activities; the net zero pre-construction works and small net zero projects (NZASP), the net zero and re-opener development fund use-it-or-lose-it allowance (UIOLI) and the net zero re-opener. The allowances provide funding to deliver projects which sit outside of NIA funding, yet work towards providing low-carbon, environmental benefits to customers. In 2023/24, we have accessed two of these three funds including the UIOLI and NZASP allowances.

Net Zero and re-opener development (UIOLI)

Over the 2023/24 period, we have invested £5.08m (£18/19) through the re-opener development UIOLI fund, and to date, we have utilised £8.82m (£18/19) of our £19m allowance over RIIO-GD2. The c.100% increase in spend compared to the 2022/23 period is a testament to the increasing number of projects which work to develop and lead the transition to a low carbon future.

20 projects have utilised the UIOLI allowance over the 2023/24 period and 5 of these projects have been focused on supporting the East Coast Hydrogen programme:

- East Coast Hydrogen Pre-FEED (NZEA0008)
- East Coast Hydrogen Secretariat (project ref: NZEA0007)
- Prospecting work to support East Coast Hydrogen programme (NZEA0007)
- East Coast Hydrogen CBA (NZEA0010)
- East Coast Hydrogen FEED Readiness (NZEA0009)



The fund was also utilised to support the following projects:

East Midlands Hydrogen (Project Ref: NZEA0011)

The new, industry-led initiative was formed to boost the energy transition in the East Midlands by growing the UK's largest inland hydrogen cluster. Plans for regional hydrogen production, distribution and industry have now gathered significant momentum. In just 6 months, (April-Sept 23), the new partnership was formally launched, with over 40 members, representing hydrogen supply, hydrogen technologies, distribution and end use, Local Authority and MP supporters.

The partnership has showcased enormous potential hydrogen demand with forecasts submitted to Cadent from 20 companies covering 70 sites in the East Midlands who collectively require more than 10TWh of hydrogen by 2040 to decarbonise their operations. Manufacturers include: Toyota, Rolls Royce, Hanson, British Sugar, Pepsico, Carlsberg Marstons, Molson Coors, Boots and East Midlands Airport.

East London Hydrogen Pipeline (NZNL0003)

In 2022, we began a new regional development programme, in partnership with SGN and National Gas, called Capital Hydrogen. The programme sought to explore how to convert the gas networks of East of England, the Southeast and London to hydrogen. To build on the initial feasibility study, a consortium of more than 30 supportive organisations has since formed to help inform the next stage of the programme, of which is the Capital Hydrogen Technical Feasibility study.

The Technical Feasibility Report assessed and delivered:

- Assets considered for abandonment and the potential repurposing opportunities for a network in East London
- Five high-level route options that could be utilised to transport 100% hydrogen to consumers
- Demand analysis of the identified consumers (versus potential supply) and the current natural gas usage in the North London network.
- Project recommendations, and next steps

Net Zero Pre-construction works and small projects fund

Over the course of 2022/23 we developed our plans for the next stage of the Whitby hydrogen conversion project, which had been selected as the optimum location for the first hydrogen village in the UK. Despite the DESNZ decision to no longer continue with the conversion trial, some of the activities ran into 2023/24, with a spend of £0.17m under this allowance. This was the only project to utilise the NZASP funding in 2023/24.

Hynet Front-End Engineering Design (FEED)

In our RIIO-GD2 business plan, we were provided £12.15m of funding to produce a Front-End Engineering Design (FEED) study for the HyNet 85km hydrogen pipe, under an evaluative PCD. This was intended to support the development of GB's first Hydrogen Industrial Cluster.

The facilitation of a first-of-a-kind hydrogen related FEED study aimed to generate useful knowledge around the use of hydrogen and the decarbonisation of industry. It also intended to provide detailed planning information to inform any future decision on whether to go forward with the building of the HyNet project.

The strategic case for HyNet remains very strong, and this is recognised at all levels across Government. Hydrogen fuel is the only feasible decarbonisation option for many of the large industries. 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.

In May 2022, we submitted to Ofgem our revised Engineering Justification Paper (EJP) covering the progress made to date and also a 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. We are now planning for the next post-FEED stage of the project and have been in discussions with Ofgem and Government about the significant associated funding that will be required. In parallel, Government are developing policy in the area of Hydrogen Transport and Storage which will impact the HyNet project when rolled out.

To align with the emerging DESNZ led Transport Business Model allocation process, we have re-programmed our FEED study activities, including a delay to the Development Consent Order (DCO) submission which is now expected in early 2025. As a result, the anticipated delivery date for the PCD has changed, with the FEED funding required for the reprogrammed activities. Under the current programme the new anticipated delivery date is 31st December 2024, as confirmed by Ofgem in March 2024. Our final completion report will describe the revised activities undertaken.

Serving industry, power and transport sectors

Our network now has 44 Anaerobic Digestion (AD) plants connected, which provides biomethane to homes, industry, power generation, and transport. Biomethane is produced by fermenting organic matter, making use of feedstocks ranging from farm and animal waste to food and sewage waste, crops, and silage. The production and injection of biomethane into the gas grid offers a green and sustainable solution to waste management for industrial, commercial, and domestic users, while providing an additional green revenue stream. The 44 biomethane sites provide the equivalent of heating 290,000 homes annually. We're expecting this to increase due to the Environment Act 2021 mandating the separate collection of household food waste by 2024/25. Furthermore, this work is supported by the extension of the Green Gas Support Schemes (GGSS) to 2028.

We received 186 biomethane connection enquiries during 2023/24, demonstrating a continued strong market appetite to connect. Currently, we have four projects under construction, along with a major site expansion. Furthermore, nine connection offers have been confirmed and are awaiting the commencement of their initial design phases.

Collaboration remains crucial to accelerating biomethane deployment. Cadent actively participates in the "Customer Entry Forum", a platform for dialogue and collaboration with the Anaerobic Digestion (AD) community and Gas Distribution Networks. This forum will undergo a transformation throughout 2024/25, with a key focus on standardising biomethane connection procedures.

The forum highlighted a significant barrier to wider biomethane adoption: the high cost of network reinforcement. Currently, the cost is recovered from a single "triggering" party, rendering many projects financially unviable. To address this, Cadent has submitted a re-opener to revise these pricing arrangements.

Cadent is a pioneer in biomethane blending. We currently have one site connected to our network, equipped with a biomethane to natural gas blending facility. This facility allows the site operator to reduce propane enrichment, leading to substantial cost savings. Recognising the potential of this technology, we developed a "Biomethane Blending Strategy" to support further deployment, both at new and existing connected sites. Throughout 2023/24, an initial analysis of all 44 connected sites was undertaken to determine their blending capabilities: (1) year-round blending, (2) seasonal blending, or (3) no blending. This information has been shared with our customers, who can choose to proceed with a full feasibility study if desired.

Unlocking further network capacity is a key priority for Cadent. We are actively developing network-specific mobilisation plans, incorporating data modelling and concept solution development to ensure cost-effective, timely, and deployable solutions.

Biomethane plays a pivotal role in transitioning to a sustainable future, a sentiment endorsed by the government and wholeheartedly supported by the Anaerobic Digestion industry. Building upon the experience gained from connecting 44 biomethane plants, Cadent will continue to collaborate with the AD community to drive innovation and maximize the distribution of renewable energy within our network.

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Connections	1	10	22	28	29	32	35	36	39	42	44
TWh actual	0.07	0.64	1.44	1.78	2.03	2.38	2.52	2.63	2.87	3.13	3.35

Table 6.1: Biomethane connections