

A nighttime photograph of a historic stone bridge with multiple arches spanning a canal. The bridge is illuminated with warm lights, and its reflection is visible in the water. On the right side of the canal, numerous rowing boats are moored in neat rows. The background shows a hillside with houses and buildings, some of which are also lit up, creating a cozy, illuminated scene under a dark blue sky.

Delivering on our promises

Business Plan Commitments
Report 2022-23

Delivering on our promise of 'more for less'

We are proud to be the team that provides the North East, Yorkshire and northern Lincolnshire with the electricity network that powers everyday life for more than eight million people across 3.9m homes and businesses, and I'm pleased to report that we have delivered 'more for less' for our customers in the 2015-23 period.

Our team has found a way to stay on course for the commitments we made to our customers despite the unprecedented disruption we have had to deal with in the shape of a pandemic and what was probably the worst storm season we've ever faced in 2021-22.

Efficiently delivering a top-class service where the lights stay on, the network stays healthy and our customers enjoy outstanding, ever-improving levels of personal service has always been both a rewarding challenge, and a considerable responsibility. Living up to those demands already makes us one of the biggest investors in our region.

We know that keeping bills as low as possible always matters to our customers. And it matters even more in the current climate where the economic outlook is challenging. Over 2015-23, we have made over £281m of efficiency savings versus our original plan, in order to improve our service and network resilience for our customers while delivering on, and in many cases exceeding, the commitments we made in 2013.

Our network will play a crucial role in the decarbonisation of our region and stakeholders have made it clear that this is their top priority. We are making good progress in facilitating and preparing for greater use of low carbon technologies, such as electric vehicles, and we have already started to see demand from customers increase.

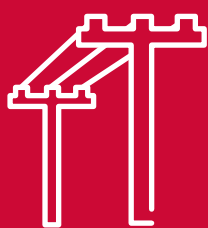
The plans we have made for the future, with our stakeholders' help, mean changing the way we run our business. We will take a leading role in enabling our region to play its part in the UK reducing carbon emissions by close to 80 per cent by 2035 and net zero by 2050.

Those challenges and responsibilities have become even more significant given the importance of energy to the global, national and regional challenge of decarbonisation. The future presents an opportunity to power our region with sustainable, long-term investments that unleash the potential of innovation, digitalisation and our people to:

- lead the drive towards decarbonisation;
- operate a highly reliable and resilient network;
- delight our customers with outstanding service;
- provide remarkable value for money;
- ensure world-class levels of safety and security;
- be a force for good throughout our region and beyond.

This is just the beginning; we expect our customers' demand for low carbon technologies to increase significantly. The plan we published for the 2023-28 period makes it clear that we intend to make sure that we keep all credible decarbonisation pathways open and that we do so in a way that is transparent and earns your trust.





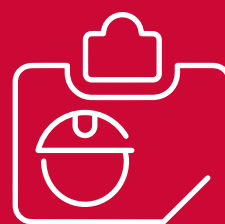
£3bn

invested in improving our service for our customers



102%

of our outputs delivered across 2015-23



45%

reduction in accident rate across 2015-23



26%

shorter power cuts



24%

fewer power cuts



6

percentage point increase in our customer satisfaction



42%

reduction in our carbon footprint



25%

faster connections



1,300

new jobs created in our region

In the next five years, we will begin to solve problems where the answers will manifest themselves over the next 25 years. In that respect, the long-term horizon of our owner – Berkshire Hathaway Energy – is a real strength. We have been able to take decisions to make investments now that will lower the cost of the overall transition and make it more likely to succeed.

They will also help to power the economy in the region as, together, we work to drive economic growth, supporting the Government's ambitions to spread prosperity across the country.

I am proud of what our team has achieved – and I am grateful to every one of my colleagues, and our partners for the part they have played in delivering these outcomes. I believe it reinforces our track record as a company that makes good on its commitments. You can count on us to do that again in the coming years as we set about delivering on our plan for 2023-28.

Phil Jones

Chief Executive

How we've done against our commitments

Overall we have delivered on 50 of our 53 commitments, and in many cases we have exceeded the promises we made in 2013. That includes beating our targets in reducing the number and duration of power cuts, reducing our environmental impact by four times our original commitment, replacing 70% more fluid filled cables, and making an extra 54 sites resilient to flooding, all while keeping costs low for our customers.

Having said that, it's disappointing to report on two commitments that we have not delivered despite making significant progress in achieving them.

- We achieved a 45% reduction in our accident rate over the 2015-23 period and remain a leading performer across the industry, including a 550 day run without a lost-time accident. However that still leaves us short of the stretching target of a 50% reduction. Our forward plan reinforces our top priority - ensuring the safety of our people, the public, and those who work on or near our network everyday.
- We reduced connections lead times by 25% in the 2015-23 period against a target of 30%. We deployed an online quotation tool in 2022-23 which has improved this even further and in the final quarter of the period we achieved a 34% reduction compared to our baseline position, a performance that has continued throughout 2023.

In all, we can be very proud of what we have achieved in delivering on our promises for the 2015-23 period, establishing our track record as we begin delivery of our plan for 2023-28.

Area	#	Commitment	Status
Safety	1	Remain a leading safety performer, meeting all requirements and halving our accident rate by 2023	Missed (91% delivered)
	2	Increase awareness in our communities of the dangers of electricity if not handled properly	Delivered
	3	Keep safety as a central driver of investment decisions and appraisals	Delivered
	4	Promptly resolve any network safety issues arising from the smart meter roll-out	Delivered
	5	Reduce the impact of metal theft, including improving substation security	Delivered
Environment	6	Reduce oil/fluid leakage to ground by 15% by 2023	Exceeded
	7	Reduce our business carbon footprint by 10% by 2023.	Exceeded
	8	Underground ~100km of overhead line in Areas of Outstanding Beauty (AONB)	Delivered
	9	Replace 134km of fluid-filled cables and use Perfluorocarbon tracers (PFTs) to quickly replace leaks	Exceeded
	10	Maintain SF6 losses as the volume of gas in our switchgear assets increases.	Delivered
	11	Deliver faster and higher quality street works reinstatement when we dig up the street	Delivered
	12	Make sure reduction of electrical losses is explicitly factored into investment decisions for a wider range of assets.	Delivered
	13	Continue to operate a full revenue protection service	Withdrawn
Reliability & Availability	14	Achieve 8% fewer unplanned power cuts by 2023	Exceeded
	15	Reduce the average length of unplanned power cuts by 20% by 2023	Exceeded
	16	Restore electricity within 12 hours - and if we don't, make enhanced and automatic payments to all customers (with extra for our vulnerable customers)	Delivered
	17	Planned power cuts to leave customers without power for less time, particularly during winter	Delivered
	18	Maintain the underlying health of the asset base and report on it annually	Delivered
	19	Target network improvements for our worst-served customers	Delivered
	20	Ensure adequate network capacity for customers wanting to connect	Delivered
	21	Increase the resilience of the network to flooding	Exceeded
	22	Use smart meter alarm information to improve network performance and the information we provide to customers	Delivered

Area	#	Commitment	Status
Customer Service	23	Make customer service more reliable, better communicated and backed by slicker processes. Be faster, at no extra cost	Delivered
	24	Use web-based technology to upgrade our process for general enquires and minor engineering works	Delivered
	25	Continue to improve the quality and speed of our complaint resolution	Delivered
	26	Provide better information to customers experiencing power cuts through voice or digital communication channels	Delivered
	27	Use technology to enable our contact centre to move from being largely reactive to mostly proactive	Delivered
	28	Make it easier for our customers to keep in touch – via internet, mobile, meetings, phone, email, social media, or text	Delivered
Social Obligations	29	Route calls from Priority Service Customers directly to contact centre advisors, bypassing automated messaging	Delivered
	30	Build partnerships with organisations to help us deliver our social programme	Delivered
	31	Promote and raise awareness of our Priority Services Register to and with other partner organisations	Delivered
	32	Enhance our training for front-line staff providing additional support for Priority Service Customers	Delivered
	33	In conjunction with local authorities, identify socially-deprived areas and prioritise our support towards them during a power cut	Delivered
	34	With others, explore the feasibility of community-level aggregated-demand response in return for a community rebate	Delivered
	35	Introduce friends and family register and 'good neighbour' scheme to support vulnerable customers	Delivered
	36	Explore the possibility, with Northern Gas Networks, of upgrading to electrical connections in high-rise tower blocks for safety reasons	Delivered
	37	Explore solutions to connect rural communities to the network	Delivered
Smart Energy	38	Provide more customer support vehicles along with more services in them	Delivered
	39	Invest £83m in smart grid enabling technology that, as a minimum, pays for itself by 2031 – the more likely result will be a much larger saving, possibly as high as £400m-£500m	Delivered
	40	Invest £52m in smartgrid network reinforcement that pays back by 2023 through avoiding £86m of traditional reinforcement – a net saving of £34m compared with traditional reinforcement methods	Delivered
	41	Provide opportunities for customers to participate in demand-side response to reduce the cost of running the network	Delivered
	42	Modify our trading and customer service systems to realise benefits from the new smart meter data	Delivered
	43	Use smart meter data to optimise network investment and reduce losses	Delivered
	44	Trial the potential for combining smart grids and smart meter data to provide additional information services	Delivered
	45	Establish a dedicated team of technical staff to perform timely modifications to our equipment when they are needed to enable the smart meter installation to proceed	Delivered
Connections	46	Reduce end-to-end connection timescales for small works by more than 30%.	Missed (82% delivered)
	47	Better payment terms - customers will not need to pay as far in advance.	Delivered
	48	Provide more flexible quotations, including online self-service and faster quotes.	Delivered
	49	Introduce a web-based system to help customers understand the capacity on our network and the likely cost of connection.	Delivered
	50	Implement a tailored service for large projects, including 'account management' where needed or requested	Delivered
	51	Provide a better service for non-contestable elements of work - regularly publishing key indicators.	Delivered
Finance	52	We will deliver an immediate 10% price reduction at the start of the period	Delivered
	53	We expect to create 1,000 job opportunities in the organisation during the ED1 period	Exceeded

What's inside...

Back in 2014, we published our Business Plan for 2015-2023. This plan set out what we aim to achieve in this eight year period for which our regulator, Ofgem, has set what we are allowed to earn.

In this report, we will set out for you how we have delivered against our commitments that we set out in this business plan and how we will continue to improve our service for you in the future.

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2022-23 Performance Snapshot - Northern Powergrid

Network	Network			Actual			
	Number of customers			3.9m			
	Total network Length			97,698km			
Reliability & Availability	Reliability & Availability			Actual	Target	Status	Trend
	Customer Interruptions	Northeast	inc. exceptional events	47.6	-	-	▲
			exc. exceptional events	46.9	58.6	Achieved	▲
		Yorkshire	inc. exceptional events	59.3	-	-	▼
			exc. exceptional events	59.3	60.9	Achieved	▼
	Customer Minutes Lost	Northeast	inc. exceptional events	45.4	-	-	▲
			exc. exceptional events	44.0	50.9	Achieved	▲
		Yorkshire	inc. exceptional events	52.1	-	-	▲
			exc. exceptional events	52.1	51.8	Missed	▼
	Incentive performance reward/(penalty)	£m		5.0	-	-	▼
	- Interruptions Incentive Scheme	£/customer bill		£0.48	-	-	-
Customer Satisfaction	Customer Satisfaction			Actual	Target	Status	Trend
	Broad Measure of Customer Satisfaction (rank out of six)			88.3% (5th)	82.0%	Achieved	▲
	Incentive performance reward/(penalty)	£m		3.4	-	-	▲
	- BMCS	£/customer bill		£0.33	-	-	-
Connections	Connections			Actual	Target	Status	Trend
	Time to quote (days) - LVSSA			7.5	4.8	Missed	▲
	Time to quote (days) - LVSSA			39.5	39.3	Missed	▲
	Incentive performance reward/(penalty)	£m		0.1	-	-	▲
	- connections lead time	£/customer bill		£0.01	-	-	-
	Incentive on Connections Engagement	£m		Nil	-	-	-
	(ICE) penalty (if applicable)	£/customer bill		Nil	-	-	-
Social Obligations	Social Obligations			Actual	Target	Status	Trend
	Individual Stakeholder Engagement and Consumer Vulnerability (SECV) score out of ten (rank out of six)			3.30 (6th)	-	-	▲
	Incentive reward	£m		0.0	-	-	-
		£/customer bill		£0.00	-	-	-
Innovation	Safety	Environment					
We spent £4.2m across 15 dedicated innovation projects (73% of our Network Innovation Allowance). In the ED1 period, our innovative solutions have now delivered benefits to customers in excess of £38.5m.	Our long-term safety performance is strong and places us in the leading pack among our peers. However in 2022-23 we missed our annual headline safety target measured by the Occupational Safety and Health Administration (OSHA) rate – 0.38 against a target of 0.22 - representing nine reportable incidents in a workforce of around 2,650.	We achieved our oil leakage and business carbon footprint targets for 2022/23 and we achieved our commitment in removing overhead lines from areas of natural beauty.					
Financials	Financials			Northeast	Yorkshire	Combined	
	Unrestricted domestic tariff charge			£93.76	£85.56	£88.96	
	Total expenditure	£m		126.9	211.5	338.4	
		% of cost allowances (2022-23)		87.6%	106.3%	98.4%	
		% of cost allowances (ED1 total)		101%	99%	100%	
		% of allowed revenue		42%	54%	49%	
	Dividends paid			19.3	25.6	44.9	
	Gearing			47%	43%	54.2%	
	Credit rating			A3/A/A-	A3/A/A-	Baa1/A/BBB+	
	Regulatory return on equity			10.4%	10.0%	9.8%	

Who are Northern Powergrid?

We are proud to provide an essential service to eight million people in our region. We take that responsibility seriously and believe that our customers should get a service that is second to none. In short, our aim is to be the best at what we do.

Our customers pay their energy supplier for the electricity they use. A proportion of the money they pay as part of their electricity bill (around £130 per year in today's prices) comes to us to cover the cost of keeping the network running safely, reliably and efficiently.

Our customers

We're committed to looking after our customers and you'll read in this report about what we're doing to improve customer service, support our local communities, and look after vulnerable customers when they need us the most.

Our region

We are proud of the vital role that Northern Powergrid plays in the infrastructure of the North of England, including enabling national schemes such as the Transpennine rail upgrade.

We play an active role in supporting the development of the regional growth agenda through our support of Business North, our sponsorship of the Northern Energy Taskforce, and through our Infrastructure North utility partnership with Northern Gas Networks, Yorkshire Water and Northumbrian Water.





8 million

customers



2,665

employees



98,000km

of network



3.9 million

homes and businesses powered



25,000km²

of network area



66,000

substations

Ensuring decarbonisation in our region is key

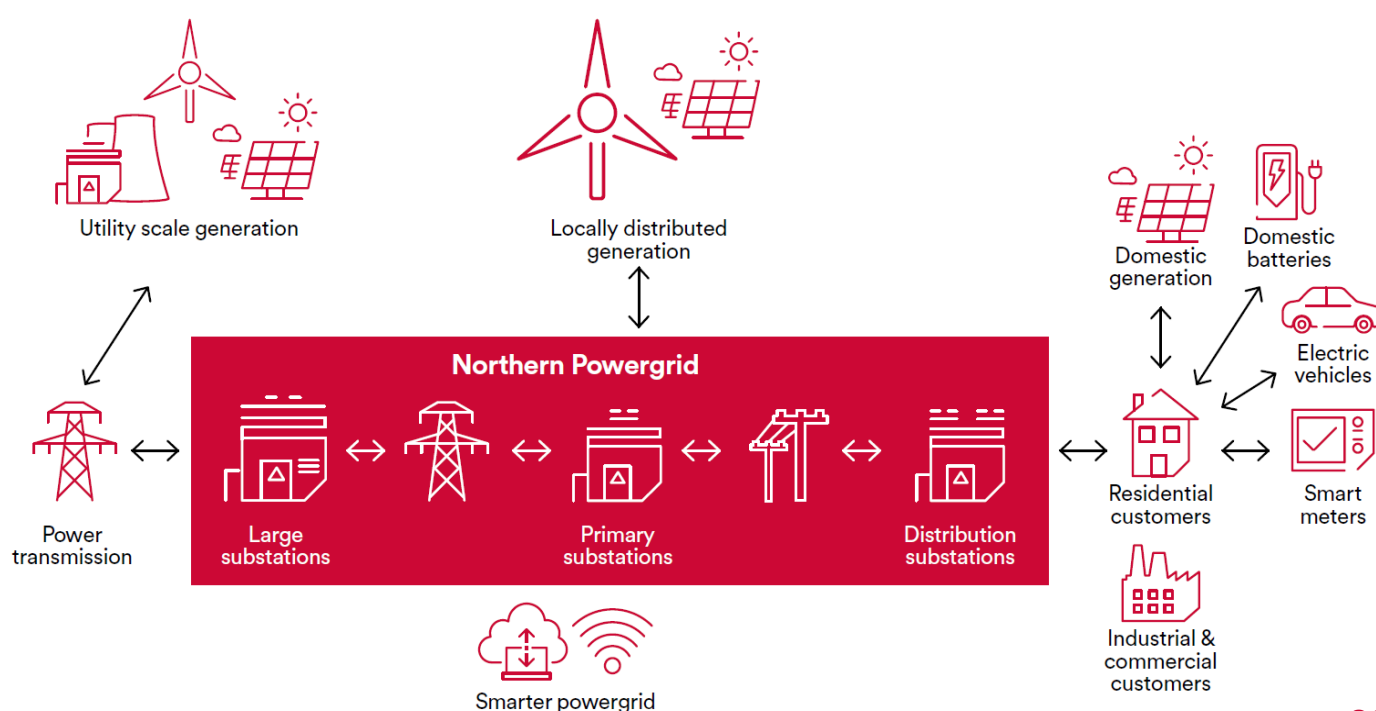
We are currently delivering the plan we set out for the five year period from April 2023 to March 2028. The plan was built through an extensive engagement programme and our stakeholders have been clear that ensuring our region can decarbonise is key. We're responding with a significant step up in investment – providing further digitalisation and smart grid solutions and provide significant amounts of new capacity to cater for growth in Low Carbon Technologies.

As part of that plan we have embarked on a transition to expand our capabilities and become a local optimiser of the energy system. We have a key role to play in facilitating regional decarbonisation by fulfilling the functions of Distribution System Operation (DSO).

As we move to a low-carbon economy, new technology and digitisation are driving unprecedented change in the way energy is created and used. As an electricity infrastructure provider, we need to make sure that our network is able to safely and securely support these changes whilst maintaining high standards of reliability for our customers.

You can read more on how Northern Powergrid will deliver a network ready for the future in [our plan for 2023-28](#).

Where do we fit into the electricity industry?



Why is stakeholder engagement so important to us?

Stakeholder engagement is key to how we plan and run our business. Stakeholder and customer views and priorities underpin our business direction, choices, and how we support our customers and communities now and as we prepare for the decarbonised future.

We carry out our engagement in accordance with our stakeholder charter. This sets out our engagement principles which underpin interactions and the positive outcomes we target for our stakeholders and customers.

Strong engagement with our stakeholders helps us make better decisions and ensures we meet the needs and aspirations of those we serve across our regions.

Delivering our plans in line with stakeholders' needs

To deliver the scale of ambition our stakeholders expect, and implement improvements based on lessons from the storms, we have strengthened our existing strategic governance model, the Business Plan Engagement Group (BPEG), with four subgroups, each led by members of the executive and aligned to areas of significant future change and stakeholders' priorities.

The four subgroups cover:

- i) Meeting the needs of customers;
- ii) Resilience;
- iii) Energy Futures; and
- iv) Our People, Our Communities.

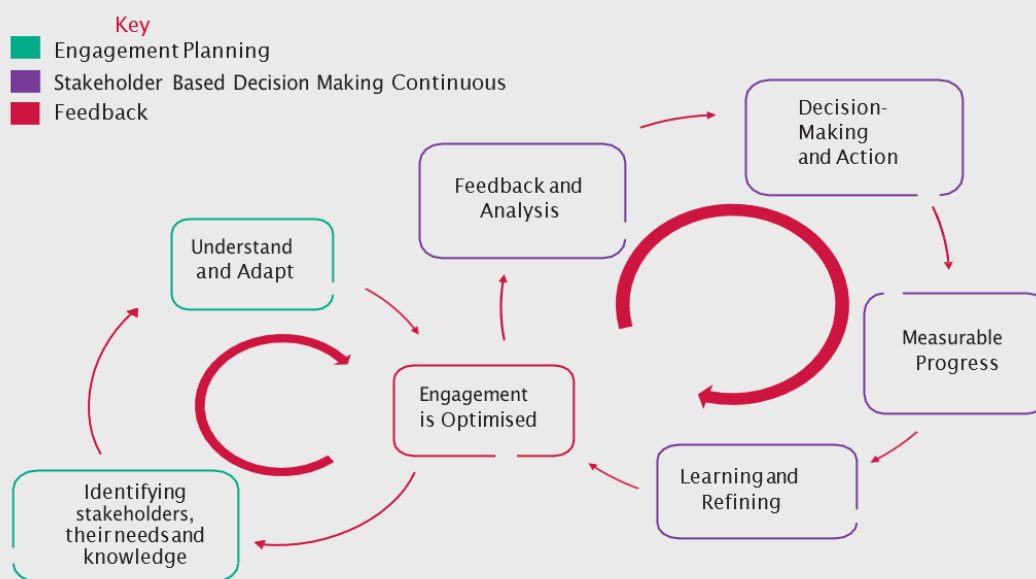
Each BPEG sub-group meets at least monthly to identify and prioritise key change initiatives – which may be improvement initiatives or commitments supporting our business plans.

They ensure that consumer voice is embedded in projects and commitments and identify opportunities to use consumer feedback to test ideas, shape potential solutions, and assess whether benefits have been delivered.

The groups' governance framework ensures consistency and standardisation of meetings and reporting.

Membership is multi-disciplinary and identifies opportunities for collaborative working and sharing best practices. And together, all groups have responsibility for cross-cutting themes of data and digitalisation, innovation, vulnerable customers, and creating a fair and just energy transition.

Our engagement approach



Step 1 - Understand and adapt

We engage with vulnerable, hard-to-reach, and time-poor individuals, adapting our approach accordingly to meet their needs. Our Future Fairness Panel gives further advice and guidance to help us engage with these groups.

Step 2 - Feedback and analysis

We record and review all feedback in an accurate and timely manner, tracking feedback, satisfaction and actions.

Step 3 - Decision making and action

Our stakeholder Business Plan Engagement Group (BPEG) and subgroups review feedback and develop action plans. These are reviewed by the executive, Customer Engagement Group (CEG) and stakeholder panels.

Step 4 - Measurable progress

Through robust project management, we report and measure progress including social return on investment (SROI), benefits and satisfaction, and report back outcomes to our stakeholders.

Step 5 - Learning and refining

We operate a cycle of continuous improvement for all engagement and continually refine our processes.

Step 6 - Engagement is optimised

The ongoing feedback is fundamental to our decision-making processes and our success as a business, keeping us accountable for delivery.

Our engagement principles

Our strategy is underpinned by our core engagement principles, introduced in 2021-22 and validated by our Stakeholder Panel, Social Issues Expert Group (SIEG) and Customer Engagement Group. Further enhancements were made this year to transform the quality of our engagement to meet our evolving role.

Inclusive

Ensuring our engagement reaches and includes a diverse range of individuals, groups, experts, and locations that represent the communities we serve.

2022-23 enhancement: Community stakeholder workshops were introduced this year with the objective of scoping the role that we should play in ensuring that no customer is left behind in the energy system transition.

Accessible

Increasing the use of new communications channels, removing engagement barriers, and increasing cooperation with a wide range of local organisations so innovative thinkers and future customers access and contribute.

2022-23 enhancement: Citizens Panel find engaging on resilience challenging due to the technical nature. To make it accessible we have tailored our material “from the ground up” so that stakeholders find it easy to use.

Relevant

Providing additional ways to discuss complex topics and tailor communication approaches so promote an understanding of topics such as decarbonisation and an inclusive energy transition.

2022-23 enhancement: CEG ensure our engagement is transparent and we further tested priorities with our Citizens Panel on what topics were relevant for their level of knowledge and interest and suggested certain topics.

Continuously Improving

Developing the skills, processes, infrastructure, and capacity of customers, communities, and our own teams to ensure engagement is two-way, measurable, and transparent.e.

2022-23 enhancement: Engagement led by senior executives reporting to the Executive Leadership team, underscoring a change in our engagement approach from a transactional “they said, we did” to a co-creation approach, underpinning a more mature role for stakeholders and ourselves.

Customer Engagement Group (CEG)

We established our Customer Engagement Group (CEG) in September 2019. The CEG is a group of independent experts led by Chair, charged with scrutinising our business plan and the quality of engagement undertaken to inform it.

Originally set up to scrutinise our RIIO-ED2 planning process, we have elected to continue to utilise the CEG to monitor how we deliver on this plan.

The CEG meets monthly with Northern Powergrid and helps to ensure that customers’ needs and views are reflected in our plans which is particularly important in the rapidly evolving low-carbon energy landscape.

The CEG has pushed Northern Powergrid to think strategically about its engagement and, as a result of its feedback, we have introduced several new initiatives, such as a SME Panel dedicated to engaging small and micro business owners and a Rural Panel dedicated to engaging rural customers in remote locations, which are essential for Northern Powergrid to adhere to as the electricity evolves over the next 10 to 20 years.

The CEG operates in an open and transparent manner, publishing updates on ceg.northernpowergrid.com



Our engagement in 2022-23

15,000

stakeholders engaged

+156%

increase in direct priority
service membership sign-ups

9,600

vulnerable customers directly
supported

£150,000

given to grassroots
community projects

NEW

local area energy planning
team

100%

of our region covered by the
fuel poverty programme

NEW

Business Planning
Engagement Group

119

outcomes delivered for our
stakeholders

12

As with every year, our stakeholder feedback shapes our strategy to engagement. Our customers are living through both the formative stages of the energy transition, and an era of an unprecedented cost-of-living crisis.

These dual focuses can lead to competing priorities, and it is important that we engagement with a wide range of stakeholders to drive our response to their needs. Insights gleaned from our engagement directly impact our operations and decision making; it is our duty to provide trusted advice to our stakeholders on different, and often complex, topics.

We have made our engagement more dynamic in 2022-23; in practical terms, this has involved more co-creation. This reflects our role as a key enabler in decarbonisation and meeting customers' increased needs.

Our BPEG engagement programme have provided systematic improvements across our business from customer service to network resilience. It enables dynamic stakeholder influence within our initiatives throughout their lifecycle whilst remaining continually responsive to external factors like the energy crisis or concerns about the UK's energy resilience.

At the beginning of 2022-23, 20 key initiatives were prioritised across our four BPEG groups with 5 additional priorities added throughout the year through our engagement. Altogether these were rolled up into three overarching priorities:

- i) A "step change" in our capacity to enable the energy transition. That means delivering more new connections to a network that connects new and diverse sources of renewable generation, all the while ensuring we provide greater consumer empowerment in a way that doesn't leave anyone behind.
- ii) We have completed major upgrades to our storm response to take onboard the tough lessons learned from the storms we've experienced in recent years.
- iii) Doing more to support customers in need, both in terms of health vulnerability and those who are suffering during this cost-of-living crisis.

We have established a new Local Area Energy Planning (LEAP) team to further support our customers in delivering their Net Zero plans and increase levels of engagement with local authorities on the topic of energy transition. The dedicated LAEP team is meeting stakeholders' increasing need for access to data, including LV mapping, and advice for more efficient process applications.

Engagement with local authorities made it clear that they often struggle with technical expertise needed to interpret data, so we have also created a decarbonisation guide to help them, and other stakeholders, understand what an electricity network looks like, why we decide what, and how things can connect and explain the meaning of the data we provide.

We engage with a broad set of stakeholders to better understand whole-system resilience. We collaborated with other utilities in our region to understand the impact that power cuts can have on their operations.

In particular, we engaged with Yorkshire Water, Northumbrian Water, Northern Gas Networks and Openreach to improve our joint response to severe weather.

We also developed plans with our civil contingency partners, like local authorities and emergency services, to ensure we all provide a co-ordinated response in times of major incidents. We have also begun to conduct proactive engagement with the care homes in our region, so that they would understand the best course of action in the event of a power cut.

The dual priorities of supporting our customers in the cost-of-living crisis, whilst developing future services to enable their journey to Net Zero have required close engagement and understanding of complex needs.

We are working closely with our partner network to increase their capacity and capability to deliver affordability services and support our customers most in need. We also introduced revised, and more challenging, fuel poverty guiding principles and have hugely scaled up our fuel poverty programme to reach more than twice the number of beneficiaries annually.

4 Stakeholder Panels

21 expert stakeholders

- i) Development of the Open Data Portal
- ii) Prioritisation of our storm resilience response inc. welfare support in rural areas

6 Social Issues Group Meetings

12 social issues experts

- i) Reduce voltage to lower bills for fuel poor households
- ii) Exploring the combination of time of use tariffs along with storage heaters to fight fuel poverty

Cross-utility Forums

Senior managers from Northern Gas Networks, Yorkshire Water and Northumbrian Water

- i) Deliver cross utility welfare support
- ii) Continued enablement of Hydrogen Village

Social Housing Forums

15+ Social Housing Providers including LAs

- i) Enabling timely retrofit installs and align strategic planning for deployment
- ii) Timescales for LCT connections have been reduced

Citizens Panel

50 customers from rural, consumer and SME panels

- i) Co-created Micro-resilience communications
- ii) Shaping the Sustainability Strategy

Local Authority Meetings and Forums

Regular meetings with LA to enable local projects, share data and understand their needs to shape our support

- i) Assembled a new LAEP team
- ii) Developed an assessment tool for LCT applications

Community Energy Forums

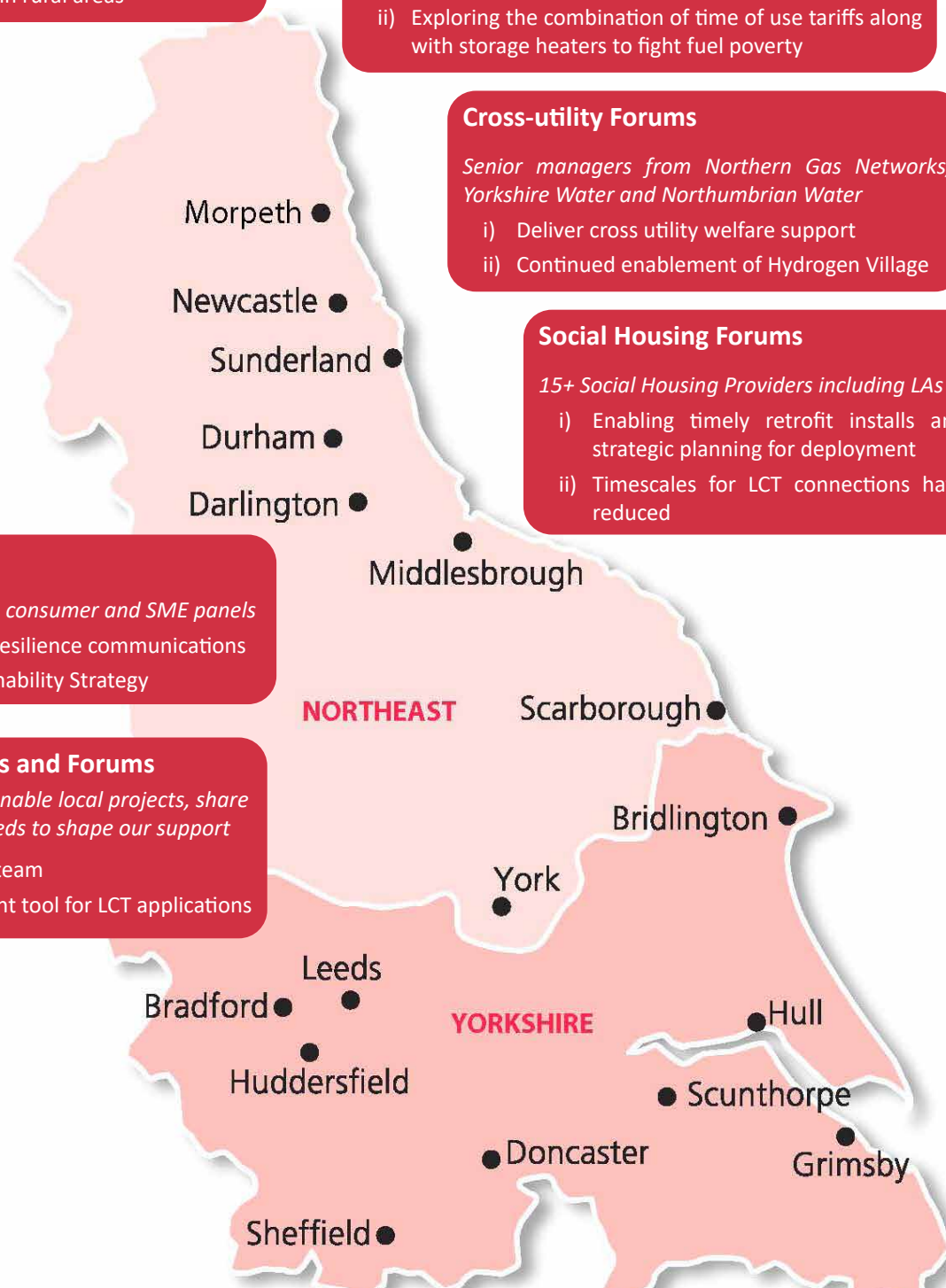
20 community energy experts

- i) Put Your Community on the map! campaign
- ii) Community energy stakeholders trained to deliver advice

Regional Forum

50 local stakeholders from energy, health, housing, transport, and government

- i) Increased off-grid connections
- ii) Developed a stakeholder heat map
- iii) Innovative approach for the rollout of high-density clusters of heat pump installations



We have made significant improvements in our safety performance across the 2015-23 period and remain a leading safety performer in our industry.

Our commitments

- Safety is our number one priority and our industry leading safety performance is something we are very proud of.
- We have significantly reduced our accident rate over the 2015-23 period with continuing pursuit of excellence through ensuring our people are equipped with the right training, experience, procedures and equipment to go home safe at the end of every day.
- We have introduced an enhanced telematics system to our vehicles that provides driver feedback to both our operatives and managers to help keep our driving standards high.
- We have continued to engage on safety matters such as agricultural safety with key partners like the National Farmers Union (NFU) as well as with schools in our region to ensure people are aware of the dangers of our network.
- We have continued to work with the National Infrastructure Crime Reduction Partnership to decrease the impact of metal theft on our customers.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Remain a leading safety performer, meeting all requirements and halving our accident rate by 2023	Missed (91% Delivered)	2022-23
Increase awareness in our communities of the dangers of electricity if not handled properly	Delivered	2022-23
Keep safety as a central driver of investment decisions and appraisals	Delivered	2018-19
Promptly resolve any network safety issues arising from the smart meter roll-out	Delivered	2022-23
Reduce the impact of metal theft, including improving substation security	Delivered	2022-23

Going beyond our plan

65 mental health first aiders trained

Over 200 managers received mental health awareness training

Launched wellbeing programme to help colleagues through COVID-19

Keeping our people and the public safe everyday...



45%

reduction in accident rate
across ED1



28%

reduction in preventable
vehicle accidents



30%

reduction in overhead line
strikes

Our engagement

At our annual Citizens Panel, stakeholders discussed our stakeholder priorities for the coming year including in safety.

What our stakeholders said...

Stakeholder encouraged us to implement lessons learned from the pandemic and integrate them into our business-as-usual practices.

They also asked us to introduce a structured workforce health and wellbeing programme.

What we have done...

Our monthly 'Wellbeing Wednesdays' engagement programme for all colleagues covers areas such as exercise and healthy eating, encouraging colleagues to practise good habits to look after their mental health.

We have implemented Agile working as a long-term policy for the business, offering flexibility to employees as part of our ongoing drive to build a more diverse and inclusive workforce.

How we've done in 2022-23

Operational Safety

- Our headline safety target is measured using the Occupational Safety and Health Administration (OSHA) rate. We also measure our performance against the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR).
- This year, we had nine OSHA accidents in a workforce of around 2,650. The majority of these incidents were minor, but we did have two incidents resulting from electrical flashover during low voltage cable jointing works. Our colleagues were wearing the correct personal protective equipment which prevented more serious injuries. These incidents translate into an OSHA rate of 0.38, which we consider disappointing given the high safety standards we set for ourselves.

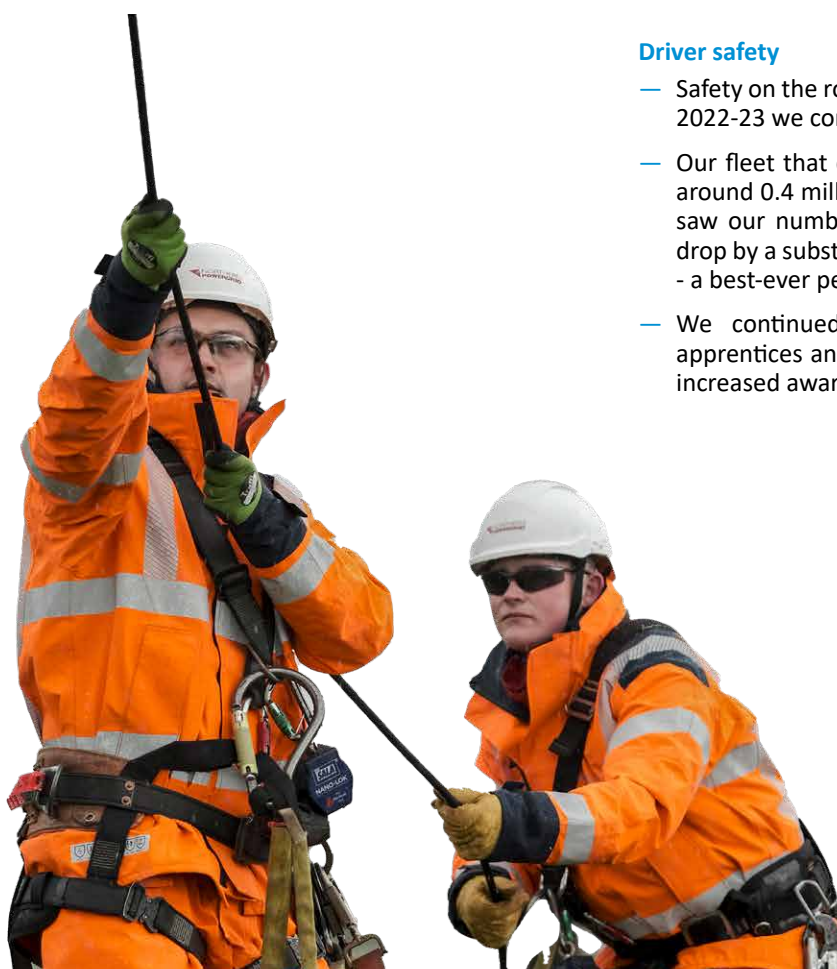
- However, long term safety performance in ED1 has been much stronger. Our average OSHA rate over the last four years stood at 0.24, which represents a significant 45% reduction against our ED1 plan baseline.

Mental health and wellbeing

- The importance of mental health and wellbeing were amplified by the COVID-19 pandemic and it was another year of positive progress on this front.
- We maintained our targeted internal programme focused on mental health, called 'Wellbeing Wednesdays'. This monthly engagement programme for all colleagues covers areas such as exercise and healthy eating, encouraging colleagues to practise good habits to look after their mental health.

Driver safety

- Safety on the road is a key part of our safety strategy and in 2022-23 we continued to improve.
- Our fleet that drove 15.4 million miles in the year. This is around 0.4 million miles more than in 2021/22 and yet we saw our number of preventable vehicle accidents (PVAs) drop by a substantial 28% year-on-year to only 26 incidents - a best-ever performance.
- We continued our safe driving programme for our apprentices and younger driving population that provided increased awareness advanced driving skills.



Our performance measures

Measure	Actual Performance	Target	Status
HSE compliance	✓	✓	Achieved
OSHA rate	0.38	0.22	Missed
Riddor rate	0.16	0.10	Missed
Children reached through school safety education programme	57,773	40,000	Achieved
Overhead line contracts	26	35	Achieved

Awareness

- In our business plan, we committed to increasing awareness in our communities of the dangers of electricity.
- A significant element of this commitment comes from educating school age children on the dangers of electricity. As ED1 has progressed, we have moved from a wholly face-to-face delivery method to a mixture of classroom-based lessons and online lesson resources. This proved particularly beneficial during the COVID-19 pandemic when we were unable to attend schools.
- Between our school visits, Crucial Crew talks, online lesson resources and Youtube lesson presentations, we estimate that our safety messages were seen by over 57,000 school aged pupils in 2022-23, far exceeding our 40,000 target and taking our figures for all of ED1 to over 370,000 pupils reached.
- We saw a reduction in the number of third party strikes to our overhead lines, specifically from farm machinery and road haulage, seeing an eight-year-low 26 strikes in 2022-23. Whilst any strike is still a disappointment, this figure represents a 30% reduction year-on-year and a 77% reduction from the peak we saw in 2020-21.
- We believe this improvement has been supported by our engagement with the national 'Look Up it's Live' programme and our engagement with the National Farmers Unions at local shows.

Cyber and physical security

- The integrity of our operational sites is vital and we have continued our investment at Critical National Infrastructure (CNI) sites. We invested £5.9m in increasing security levels at higher risk sites during ED1 and also established operations in our alarm receiving centre.
- We have experienced another year of reductions in metal theft as a result of the National Infrastructure Crime Reduction Partnership, where we receive crime hot spot analysis and other intelligence from across a range of stakeholders and sectors.
- As our information technology and the associated risks evolve, we continue to respond by enhancing our cyber security defences. We have accommodated £25m of investment on cyber defences that were not envisaged in ED1, enabled by driving efficiencies in our cost base.

What's next for safety at Northern Powergrid?

As we move into the ED2 period, safety will remain our top priority. We aim to maintain our strong track record and ensure our staff go home safe at the end of each day.

We will maintain our position as an industry-leading safety performer, delivering continued improvement by focusing on leading causes of injuries, and continuing to reduce exposure to high-risk activities.

We will utilise new and emerging technologies to help us analyse trends in safety incidents, including digital solutions for safety data acquisition and analytics and using vehicle telematics to support driver behaviour changes.

Expand safety management standards within our supply chain, we will target a 50% reduction in our contractor accident rates, using enhanced audits of contractor risk assessments and improving hazard and near miss reporting.

To further reduce the number of contacts with overhead lines, we will develop an innovative technology solution to alert agricultural workers to the location of overhead lines.

Improve the standards of health and mental wellbeing among our workforce and be externally verified under the ISO 45003 framework. We are already the only DNO to implement fatigue management and we will continue to reduce risk of fatigue as well as accident through its implementation.

Education programmes within our communities is an important part of keeping the public safe, we will deliver awareness education programmes in schools as well as utilising technology to reach more school-aged children and workers from high risk sectors.

We will equip our fleet vehicles with defibrillators as part of the Ambulance Services community first-responder programme.

We will continue to work with the agricultural sector to reduce the number of contacts with overhead lines, on the next page is a case study of our recent campaigns which have had a 77% reduction in overhead line strikes in 2 years.

On cyber resilience, we will build on the extensive investments we have already made to protect your information and electricity supply, and to continually reduce the risks of existing and evolving threats.

We assess ourselves against National Cyber Security Centre's Cyber Assessment Framework (CAF) and we will continue to invest so that we achieved the next level of security to ensure we protect our network, our customers data, and our infrastructure.

Look up it's live!

Educating our agricultural stakeholders about the dangers of overhead line strikes.

Keeping customers safe from the dangers of striking overhead lines has long been an important part of our safety programme.

Our 'Look Up It's Live' campaign to educate farm workers of the dangers of overhead line strikes has run throughout ED1 and has helped us achieve some impressive reductions in line strikes in our area.

However, there was some evidence of momentum being reduced in this area with line strikes increasing over the last few years, especially from agricultural workers.

In response, we stepped up our efforts in 2022-23 to get our safety message out to as many agricultural stakeholders as possible.

Along with our traditional measures such as visits to our local agricultural collages and annual newsletters to both farm and haulage workers, we stepped up our support and became the main sponsor of the Great Yorkshire Show.

While we have long been a supporter of the show, our position as main sponsor meant we were able to get our safety message to a wider audience:

- i) Full page Look Up It's Live advert in the souvenir programme.
- ii) Further advert in the main Farmers' Leaflet.
- iii) Video adverts running throughout the day in the main presentation ring.
- iv) Digital adverts and links to our website on the Great Yorkshire Show website as well as in their e-newsletter and ticket offer emails.
- v) Look Up It's Live leaflets and cab stickers available on our stall along with at the Wheatsheaf café and cattle society offices.

These efforts appear to have had a significant impact on the number of overhead line strikes. In 2022-23 we saw an 8-year low 26 strikes occur. Whilst any strike is still a disappointment, this figure represents a 30% reduction year-on-year and a 77% reduction from the peak we saw in 2020-21.

30%

reduction in overhead line strikes

77%

reduction since the peak in 2020-21



Our environmental impact is reducing each year and we have far exceeded our ED1 business plan commitments in this area. We have set a target to achieve net zero operations by 2040.

Our commitments

- We are committed to making a difference in our region through our environmental initiatives and have exceeded on many of the commitments we made in our plan back in 2013.
- Another solid year in performance meant we have reduced carbon footprint and oil and fluid loss by four times the amount that we promised in our original plan, as well as completing delivery of both our underground of overhead lines in areas of natural beauty as well as replacing fluid-filled cables to reduce fluid loss.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Reduce oil/fluid leakage to ground by 15% by 2023	Exceeded	2022-23
Reduce our business carbon footprint by 10% by 2023	Exceeded	2022-23
Underground around 100km of overhead line in Areas of Outstanding Beauty (AONB)	Delivered	2022-23
Replace 134km of fluid-filled cables and use Perfluorocarbon tracers (PFTs) to quickly replace leaks	Exceeded	2019-20
Maintain SF6 losses as the volume of gas in our switchgear assets increases	Delivered	2022-23
Deliver faster and higher quality street works reinstatement when we dig up the street	Delivered	2022-23
Make sure reduction of electrical losses is explicitly factored into investment decisions for a wider range of assets	Delivered	2018-19
Continue to operate a full revenue protection service	Withdrawn	2015-16

Going beyond our plan

Our reduction in oil/fluid loss (61%) and carbon footprint (42%) are four times more than our original commitments of 15% and 10% respectively

Embedded the enduring benefits of hybrid working with 26% lower business vehicle emissions

224km of fluid-filled cables replaced - 90km more than our plan

Delivering a future-ready network today...



42%

reduction in business carbon footprint



61%

reduction in oil/fluid loss



102.6km

of overhead lines undergrounded in AONB

Our engagement

We engaged with key stakeholders and our Customer Engagement Group about our environmental action plan for ED2.

What our stakeholders said...

Our stakeholders and customers expect us to deliver improved environmental performance while keeping costs low for customers.

What we have done...

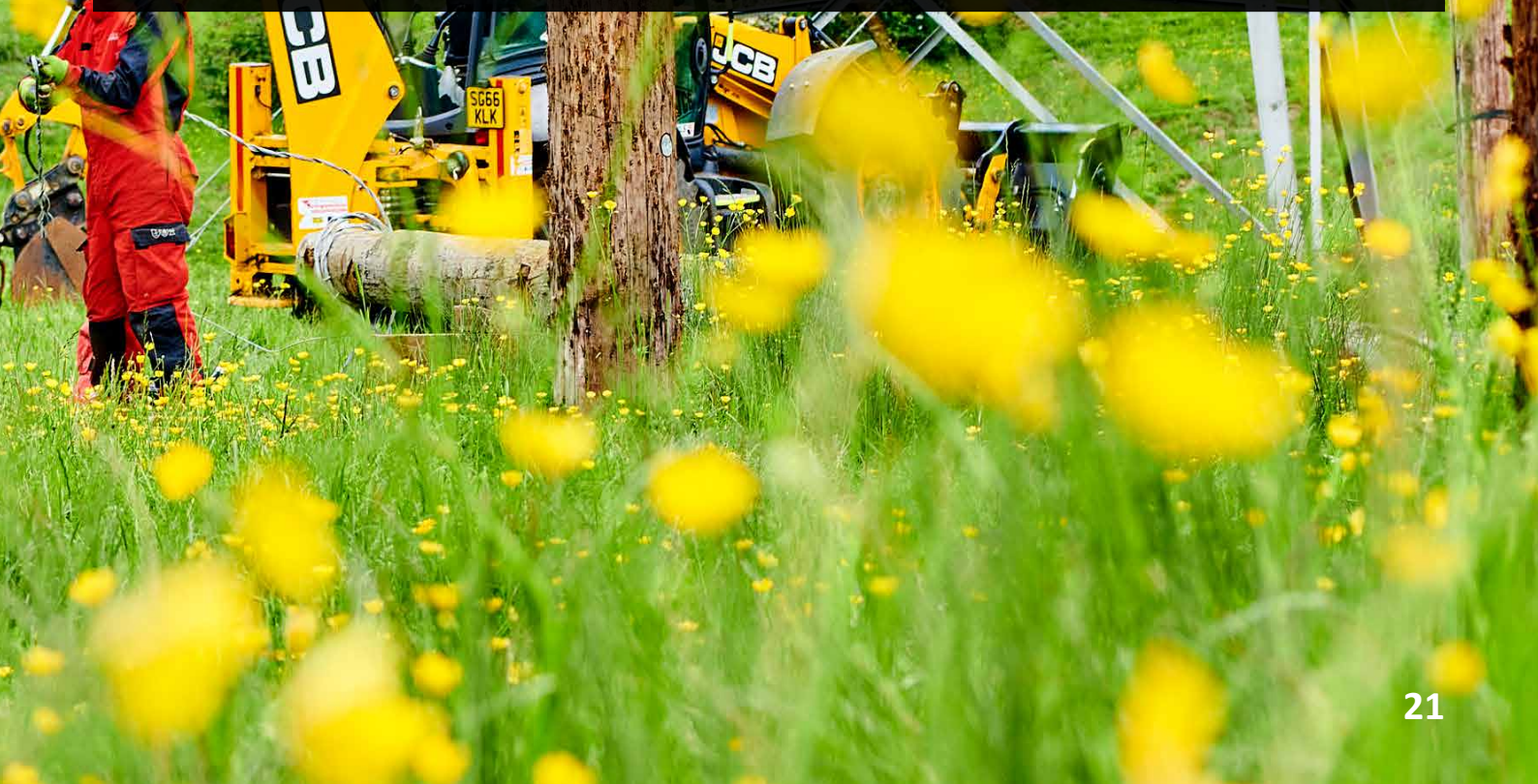
In response we increased our environmental performance ambition and set new targets for 2023-28.

We adapted our environmental action plan to harness innovative solutions, like perfluorocarbon tracer (PFT2) technology, to achieve outcomes whilst reducing costs.

We have implemented new management processes to tackle sulphur hexafluoride (SF₆) emissions.

We have adapted our biodiversity plan to place customers in a central role, building their sense of ownership in our assets and environmental action.

We have benchmarked our environmental performance with the Joseph Rowntree Foundation's Leeds Anchor Network.



How we've done in 2022-23

Pursuing net zero operations

- In our plan for the 2023-28 price control we have set a target to achieve net zero operations by 2040.
- We committed to reduce our Business Carbon Footprint (BCF) by 10% during ED1. We far exceeded this original target with emissions of 34,868 tCO₂e in 2022/23 which represented a 42% reduction against our ED1 business plan baseline.
- While the continued relaxation of COVID-19 restrictions, and a wider return to office working, has increased business travel, we have embedded the enduring benefits of hybrid working with 28% lower business vehicle emissions than 2019-20. We are confident that our adoption of new ways of working will have a lasting impact on our carbon footprint.
- Our electric response vehicle equipped with an on-board energy storage system (ESS) is operational and can help to power homes while their electricity supply is being restored.
- This is a quieter, cleaner alternative to diesel-powered generators that can absorb power as well as generate. It has been mobilised numerous times since 2020, supporting local businesses and communities.
- It is now firmly in BAU, cheaper than using diesel generation, and being further developed both in capacity and functionality.

Our performance measures

Measure	Actual Performance	Target	Status
Business Carbon Footprint (tCO ₂ e)	34,868	53,730	Achieved
Oil loss (Litres)	20,618	45,258	Achieved
Overhead lines removed in areas of natural beauty (km, cumulative)	102.6	97.9	Achieved
FFC replacement (km, cumulative)	224.4	134	Achieved
SF6 lost to atmosphere (kg)	129	112	Missed
Environmental agency Incidents (count)	9	5	Missed
Streetworks quality (%)	91%	90%	Achieved



Driving down Sulphur Hexafluoride (SF₆) losses

- A key element of our BCF is managing the loss of sulphur hexafluoride (SF₆) to the atmosphere.
- SF₆ is damaging to the environment if not managed correctly as it is 22,800 times more potent than CO₂ – this is why we made a specific commitment to reduce losses.
- Our 2022-23 performance of 129kg lost was beyond our 112kg target we set in our ED1 business plan. This was due to four units of switchgear that were leaking. To mitigate further losses, we have repaired two of these units and removed the other two from our network entirely.
- Across all of ED1, we have averaged a loss of 94kg per year, a 16% reduction on our ED1 plan baseline.

Undergrounding in Areas of Outstanding Natural Beauty

- We care about the visual impact our network has, especially in Areas of Outstanding Natural Beauty (AONBs).
- In the year, our programme saw the removal of a further 14km of overhead lines in AONBs, bringing our total for ED1 to 102.6km, 2.6km beyond our original target.

Reducing oil loss

- We work hard to reduce the amount of oil and fluid that is lost into the ground. One way this loss happens is leaks from fluid-filled cables where fluid is used as an electrical insulator on some of our network.
- We committed to reduce oil and fluid loss by 15% in ED1. We continue to manage leaks effectively and in the year we lost 20,618 litres – that represented a 61% reduction compared to our ED1 baseline, well ahead of our original target of 15%. This performance also exceeded our ambitious stretch target of a 50% reduction.
- We also committed to replacing 134km of fluid filled cables by 2023 to reduce overall risk. We greatly exceeded this original target, removing an extra 30km in 2022-23 alone to take us to 224.4km in the ED1 period.

Optimising losses from the network

- Networks incur electrical losses when transferring power. We've delivered on our commitment to factor this into a wide range of investment decisions and we are busy with a range of activities to manage losses on our network as described in our losses strategy.
- Through our Boston Spa Energy Efficiency trial, we are seeking to understand smart meter data and customer behaviour in near real time to save money and hopefully reduce losses on the customer's side of the meter.
- More details can be found in our environment report and our losses strategy which are available on [our website](#).

What's next for our environmental action plan?

The nature of our business means we have a responsibility to protect the environment and minimise our impact where we can. We will be continuing to deliver on our decarbonisation plan to meet our commitment of being net zero by 2040.

Our action plan includes increasing the number of ultra-low emission vehicles and zero emission vehicles on our fleet.

We will continue to leverage adjustments to our operations made during the pandemic to support reduced business mileage.

We will also be adding renewable generation to 50 sites and implementing energy efficiency measures to reduce improve our carbon footprint and operate sustainably.

We will continue to assess low carbon fuel alternative for mobile generation, such as Silent Power, and invest in new technologies while ensuring we keep bills low.

We will install low-loss transformers and oversized cables onto our network to reduce our electrical losses.

We will continue with our oil/fluid loss reduction, replacing fluid-filled cables with solid cables as well as utilising innovations such as Perfluorocarbon tracers to detect, locate and repair leaks more quickly, and continuing our project on utilising self-healing cable fluid additives.

We have an opportunity to enrich local habitats through our activities. Our plan is set to deliver biodiversity initiatives to promote natural habitats and increase the variety and variability of species and ecosystems at 200 of our major sites.

Within our region we have four National Parks and five AONBs. We have put 103km of overhead lines underground in these areas in 2015-23 and we will continue this programme into 2023-28 – at the same run-rate with up to 10 percent outside of designated areas – to improve the visual amenity in our region.

The sustainability of our supply chain is also important to us, our Responsible Procurement Charter will help us to promote environmental management and ensure we make procurement decisions with decarbonisation in mind.

We will also deliver a funded programme of support for suppliers to enhance environmental competences including achieving ISO 14001 accreditation.

Our customers' number one priority is the reliability of the network and we have outperformed the reliability commitments we made in our ED1 business plan.

Our commitments

- In our ED1 business plan, we committed to reducing the number of unplanned power cuts by 8% and their duration by 20%.
- We've continued to consistently outperform our targets since the start of the period enabled by the deployment of new technology and targeted innovation on the network.
- We know that the reliability of the network is becoming even more important as customers transition to electricity for heating and transport. We are working to ensure that our network is prepared for the connection of more renewable generation and low carbon technologies such as electric vehicles.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Achieve 8% fewer unplanned power cuts by 2023	Exceeded	2022-23
Reduce the average length of unplanned power cuts by 20% by 2023	Exceeded	2022-23
Restore electricity within 12 hours - and if we don't, make enhanced and automatic payments to all customers (with extra for our vulnerable customers)	Delivered	2015-16
Planned power cuts to leave customers without power for less time, particularly during winter	Delivered	2019-20
Maintain the underlying health of the asset base and report on it annually	Delivered	2022-23
Target network improvements for our worst-served customers	Delivered	2022-23
Ensure adequate network capacity for customers wanting to connect	Delivered	2022-23
Increase the resilience of the network to flooding	Exceeded	2019-20
Use smart meter alarm information to improve network performance and the information we provide to customers	Delivered	2022-23

Going beyond our plan

270 high-risk sites made resilient to flooding, 114 more than our plan

2,000 circuits now part of our Automated Power Restoration System, covering 2.7 million customers (70% of our customers)

10,000 remote controllable switches deployed onto our network

Improving network reliability for our customers...



880,000

customers resorted within 3 minutes by our automated power restoration system



24%

reduction in the number of unplanned power cuts



26%

reduction in the length of unplanned power cuts

Our engagement

We met with MPs across our region to understand the views from their constituents around our performance on resilience and severe weather events.

We collaborated with other utilities in our region, including Northern Gas Network (NGN), Yorkshire Water and Northumbrian Water, to understand the impact that power cuts can have on their operations. We shared our NGN joint action plan with the other utilities.

What our stakeholders said...

Our MPs told us that communication was key during severe weather events.

In particular, the communication of more accurate estimates of restoration times mattered most to our customers so that they can plan accordingly.

Agreement was reached that shared planning would be beneficial for customers, especially during major incidents. This is particularly important for vulnerable customers.

Senior leadership engagement with regional stakeholders identified that care homes were not on the list of institutions that have power maintained in a power cut.

Engagement with Northumbrian Water highlighted the challenges they face when our equipment operates to protect the network, resulting in brief impacts on their equipment.

What we have done...

We improved telephony capacity to enable more customer communication during storm events: we can now receive up to 3,000 concurrent calls, up from 240. We increased website capacity and integrated a new power cut logger.

We have increased our contact centre resources, improving power cut communications for vulnerable customers, and now operate longer

With Northern Gas Networks, Yorkshire Water and Northumbrian Water we launched a forum for ongoing knowledge sharing and coordination. We now have shared plans for mutual aid and collective deployment of resources.

We have begun to conduct proactive engagement with the care homes in our region, so that they would understand the best course of action in the event of a power cut.

We developed plans with our civil contingency partners, like local authorities and emergency services, who lead and coordinate regional emergency responses, to ensure that in a national energy emergency our partners know where our most vulnerable customers are located so we can co-ordinate actions to support them.

How we've done in 2022-23

Reducing the impact of unplanned power cuts

- Our performance in 2022-23 represented a 19% reduction in the number of unplanned power cuts and a 17% reduction in their duration compared to our ED1 business plan baseline.
- The 2022/23 regulatory year was challenging for our reliability performance in the Yorkshire area after periods of significant storms and extreme heat. This resulted in a marginal performance deterioration overall year-on-year.
- However, performance on the whole remained strong in ED1 and we saw a 26% reduction in customer minutes lost and a 24% reduction in customer interruptions compared to our ED1 plan baseline. Both of these performances reflect positively against respective targets of 20% and 8% for ED1.
- Roll-out of innovative technologies has contributed to our improved network performance in the period. We have continued our deployment of Automatic Power Restoration System (APRS) technology which enables us to restore power supplies by automatically switching to alternative circuits on our network. As a result, 880,000 customers had their power restored within 3 minutes in ED1.
- Additionally, our Foresight fault prediction project completed in ED1 has made hundreds of thousands of pre-fault identifications flagging potential future issue on the network. This exciting innovation is a key part of our plans for the future and forms part of our activities for 2023-28.
- We continue to target underperforming parts of our network for our worst served customers. In 2022-23, our system planning and investment targeted improvements on 95 under-performing circuits.
- Benefit realisation from smart meter data has been lower than we planned in the ED1 period due to delays in the national smart meter rollout and technical issues with the national system in the North. Despite this we have delivered projects that support our operations and customers with smart meter power outage data.



Our performance measures

Measure	Actual Performance	Target	Status
Unplanned Customer Minutes Lost (Northeast)	41.4	47.9	Achieved
Unplanned Customer Minutes Lost (Yorkshire)	49.8	50.0	Achieved
Unplanned Customer Interruptions (Northeast)	45.6	57.1	Achieved
Unplanned Customer Interruptions (Yorkshire)	58.1	60.0	Achieved
Flood defences	210	156	Achieved
Health indices (% of monetised risk value)	102%	100%	Achieved



Ensuring seamless services for planned power cuts

- Where essential maintenance and repairs to the network are required planned power cuts are sometimes necessary.
- In our plan we committed to reducing the length of these planned works; across ED1 these reduced by 23% (58 minutes) to an average of 195 minutes.
- During the pandemic we introduced a senior review process for any planned outage of more than 4 hours focusing on reducing the impact on customers who were required to isolate at home, particularly the vulnerable.
- We also continue to operate our policy whereby planned works in the winter months do not leave customers without power for more than 4.5 hours.

Improving network health

- Our investment plans target ageing and highly loaded assets in order to reduce the risk of failure.
- We delivered on our ED1 business plan output targets, tracking ahead of Ofgem's Asset Health and Criticality measure for the period. We achieved 100% of our Network Asset Secondary Deliverables in the 2015-23 period, closing out with a modest over-delivery of 100.5% for NPgN and 103.0% for NPgY.

Enhancing the resilience of the network to flooding

- In 2022-23 we upgraded flood defences at another 4 sites, taking our total in ED1 to 210 which significantly surpasses our original commitment of 156 for the period as a whole. We had previously planned to upgrade a further 60 sites, however following site surveys and some minor works these have proven to be resilient to flooding in line with national standards (ETR138). This takes us to a total of 270 sites made or confirmed to be resilient to flooding during ED1.

Ensuring sufficient network capacity for connections

- One of our key ED1 commitments was to ensure adequate capacity on our network to enable our customers to connect generation and low carbon technologies.
- As we stand today >98.2% of our primary substations are less than 95% utilised. These levels reflect the same risk that we had at the start of ED1 and this position has been maintained through careful management of demand on our primary substations and targeted interventions through load transfers and reinforcement.
- Our voltage reduction programme was implemented through ED1 to free up capacity on our network. In completing the programme for the period we've released a total of 4.6GW across 511 sites.

What's next for the reliability of our network?

Ensuring our network is reliable is important to our customers and we will drive excellence in our front-line operations and have a network that is safe, resilient and reliable but also smart and flexible.

Progressive use of network technology will allow us to manage an increasingly dynamic and complex low carbon energy landscape for our customers in real time – working hard to leave as few customers off power for the shortest possible time.

We will do this by continuing our remote-control programme and APRS installations, with 8,600 remote high voltage switches planned for installation in the 2023-28 period - these allow us to remotely isolate faults on our high voltage network and reduce the number of customers that are off supply.

We will focus on improving the speed of restoration on our low voltage network, including deploying some 4,000 fault management devices and establishing robust data analysis capabilities.

Using these fault management devices, along with our Foresight innovation project which we are rolling out into BAU, we will be able to detect faults before they impact customers and repair them pro-actively.

We will increase the utilisation of mobile generation to restore supplies for customers quicker, including the use of low carbon alternative fuels and Silent Power.

Alongside the use of mobile generators, we are investing in partial restoration for customers, particularly vulnerable customers, to ensure they are still able to use their critical electrical devices during a power cut.

These are supported by our proactive responders, covered in more detail in the customer service section, who help reduce the impact of interruptions lasting more than 6 hours.

We are investing £4m in schemes to improve the network for 3,000 worst-served customers, upgrading the assets supply rural communities and installing automation to help restore their supplies faster.

Alongside this we will also be innovating in the use of microgrids and micro-resilience projects which will largely target customers in rural areas where challenges in overhead asset resilience, and exposure to wind, snow and ice, can mean they experience more interruptions than those in large towns and cities.



Stepping up our major incident response

Improving how our ability to respond to extreme weather events like Storm Arwen.

We have been working hard since Storm Arwen to improve our capabilities during a storm, as well as taking some of the lessons learned into normal operations. Some of the changes we have made so far are:

1. **Revised communications framework** - we have significantly improved our communication framework to deliver scheduled, high quality information to our customers and other stakeholders particularly around estimated time of restoration as well as welfare support and compensation entitlement both of which featured heavily in our customer feedback.
2. **An increase in the number of overhead linesmen available** - we have increased this capacity with over 300 operatives now available to support restoration efforts during a major incident.
3. **An increase in our capacity to deploy generators** - we have completed the procurement of 100 additional wheelbarrow generators and developed a bespoke process for their deployment. This will allow us to restore supply to single premises (those which would usually be restored in the "comet's tail" of the incidents.) This will allow us to significantly reduce the number of worst affected customers during a major incident.
4. **Additional resources for connecting wheelbarrow generators** - In addition to the generators we have also increased the resource available to connect the generators through internal resource and contractors.
5. **Increased telephony capacity** - the new cloud-based telephony system has been tested for resilience up to 3,000 concurrent calls at a rate of 14 calls per second (the maximum number received during Storm Arwen was 500 at a rate of 4.4 calls per second.) This is a significant improvement on the previous telephony system which could handle only 240 concurrent calls. It also significantly increases the capabilities of our contact centre and call overflow support (in combination with the new power cut logger).
6. **Increased website capacity including new power cut logger** - the new power cut logging tool is a scalable cloud-based system which has been tested up to 30,000 concurrent users processing 12,000 transactions per minute (this is roughly 4x what we experienced at the peak of Storm Arwen). The website also provides improved outbound communication capability through easier content management and an improved power cut logging user interface.
7. **Increased contact centre resources** - we are still in the process of training our teams to support the contact centre during a major incident (utilising the technology upgrades from the telephony and website implementations), we currently have 400 colleagues who are able to provide support.
8. **Increased support for customers, particularly vulnerable customers** - we have contracted with the national caterers associated with over 6,800 catering partners to deploy food vehicles during an incident. We have already utilised this during the gas outage at Stannington in 2022. We have also established proactive on-site support teams for customers who operate both in normal operations and during major incidents.

The reality is we will never be done in this space, there will always be more we can do to support our customers during significant weather events that impact our network. That's why we continue to work to improve our capability, including working with our partners in the Berkshire Hathaway Energy group, to develop and implement the best practice in major incident response for an energy network.

300

overhead linespeople available

100

wheelbarrow generators

400

colleagues trained to take calls

6,800

catering partners to support customers

We are focused on delivering the best levels of service for our customers and have improved our customer satisfaction by 6% percentage points in the 2015-23 period.

Our commitments

- Our aim remains unchanged, to be the best at serving our customers. We made significant progress in ED1 – improving our services through responding to customer feedback.
- Our objectives continue to be for us to provide accurate and timely information; to offer customers more ways to communicate with us; to keep our promises; and to always work to give customers great service in our interactions across all of our service offerings.
- We brought in significant service improvements on all service lines such as the ability for customers to self-serve through our website and CRM system, expanded our online booking functionality to include evening and weekend appointments for General Enquiries and Service Alterations, whilst improving our proactive customer communication.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Make customer service more reliable, better communicated and backed by slicker processes. Be faster, at no extra cost	Delivered	2019-20
Use web-based technology to upgrade our process for general enquires and minor engineering works	Delivered	2015-16
Continue to improve the quality and speed of our complaint resolution	Delivered	2022-23
Provide better information to customers experiencing power cuts through voice or digital communication channels	Delivered	2022-23
Use technology to enable our contact centre to move from being largely reactive to mostly proactive	Delivered	2020-21
Make it easier for our customers to keep in touch - via internet, mobile, meetings, phone, email, social media, or text	Delivered	2019-20

Going beyond our plan

Exceeded our customer satisfaction target by 3 percentage points

£12.5m additional investment in customer service improvements including web, telephony and data interfaces

Implemented evening and weekend appointments across asset replacement, safety requests and service alterations

Improving performance for our customers every day...



88.3%

Customer Satisfaction



30 million

outbound communications in
the year



43%

reduction in complaints
volumes

Our engagement

We engaged with customers and other key stakeholders to understand barriers they face when getting in touch with us and what a better communication model would look like.

We also engaged with UKPN to acquire details on best practice.

What our stakeholders said...

Stakeholders told us that expanding and enhancing our contact channels should be a priority, especially before and during extreme weather events.

Additionally, customer engagement found that customers wanted a choice in how they contacted us through alternative communication channels and increased service hours.

What we have done...

Through stakeholder engagement and specific post service feedback surveys, we evaluated our service experience, including new channels and operating hours.

We are currently trialling WhatsApp, reply text messaging and video messaging as additional contact channels. We launched evening and weekend appointment offerings for both our General Enquiries and Service Alteration services to improve flexibility for customers and are committed to expanding evening and weekend appointments into Connections Quotations.

We carried out focused engagement with customers of unplanned power cuts to understand their communication expectations.

Our customers and stakeholders told us that they would prefer to wait for an accurate estimated time of restoration rather than receive an average estimate, and that they prefer a more personalised response.

They also stated that when an outage reaches 6 hours, they want us to provide onsite support.

We have launched a new communications strategy on LV power cuts to approach on how we communicate with our customers. We now provide more regular updates throughout the fault and an ETR is provided once investigations have taken place.

We established a dedicated team of resources to support customers and on-site who experience unplanned power cuts lasting more than six hours.

We partnered with the National Caterers Association to provide onsite food and drinks to our customers in the event of an extended power cut or major incident.

How we've done in 2022-23

Driving customer satisfaction

- Overall customer satisfaction across our services has improved by 6.0 percentage points since the start of the ED1 period.
- This remains down from our best-ever performances which peaked in 2020-21. Since then, we have seen the impact of Storm Arwen, which continued to affect our customer satisfaction performance, an increase in connections volumes with the uptake of LCTs, as well as changing customer expectations – such as having self-service capability and more choice over the delivery of the services.
- Throughout 2022-23 we continued to bring in significant service improvements and In the final quarter of the regulatory year, our customer satisfaction scores climbed by a further 0.9 percentage points. Since then, scores continued to rise by a further 0.8 percentage points in the first quarter of 2023-24 and now sits around 90%
- Whilst we ranked fifth when compared to other distribution network operators in 2022-23; we believe the initiatives we are implementing will support continued improvement to bridge the gap to the leaders in the industry.

Using technology to provide better services

- Our Customer Relationship Management (CRM) system is enabling our teams to deliver great customer service.
- Introduced in 2017, CRM covers a range of our customer facing operations.. We have continued to develop this platform successfully launching the ability for customers to self-serve through our website and CRM, and expanded our online booking functionality for evening and weekend appointments.
- In 2022 we made improvements to serve our small works connections customers through this self-service platform. Since embedding this development, we've seen a 2.8pp improvement in our Connections satisfaction scores.
- Our CRM-Go app technology provides us with the capability to issue real time updates to our customers who are impacted by a power cut or have requested a service from us. Since we've embedded this development, we've seen a 1.4 percentage point increase in planned power cut satisfaction scores.

Our performance measures

Measure	Actual Performance	Target	Status
Broad Measure of Customer Satisfaction - Overall	88.3%	85.0%	Achieved
Broad Measure of Customer Satisfaction - Powercuts	88.1%	85.0%	Achieved
Broad Measure of Customer Satisfaction - Connections	86.1%	85.0%	Achieved
Broad Measure of Customer Satisfaction - General Enquiries	94.0%	85.0%	Achieved
Unplanned power cut calls answered	93.9%	99.0%	Missed
Unplanned power cut calls answered within 20 seconds	76.8%	90.0%	Missed
Complaints resolved in 1 day	76.4%	80.0%	Missed
Complaints resolved in 31 days	90.7%	95.0%	Missed



Expanding proactive communication

- We continue to refresh our customer contact information to enable proactive contact whilst complying with data protection regulations. We currently hold 65% of households' mobile numbers and 67% of email addresses, positioning us well to keep our customers informed.
- We are committed to working on our data, exploring options to work with external companies and supporting data share projects to ensure that we explore every opportunity to hold up to date information for our PSM.
- We're making it easier for customers to get in touch with us and access the information they need. Our suite of online tools includes live web chat and CRM Knowledge Base to assist customers in finding the information they need. In 2023 we have launched new contact channels including video chat, WhatsApp and reply text messaging.
- We want to ensure that customers who are registered on our Priority Service Membership (PSM) are given the care they need and PSM calls are routed directly to a dedicated team. In 2022-23, over 50,000 PSM customers who are medically dependent received proactive contact to check their needs when they experienced a power cut.
- We are continuing to look at how we can enhance service for those most vulnerable, we have launched our pro-active on-site support service when power cuts are expected to exceed 6 hours and our pro-active outreach for medically dependant customers within 1 hour.

Supporting our teams to provide a great service

- Our comprehensive induction programme 'Best Welcome' continues to be a success; providing all new colleagues with the toolkit to deliver the levels of service we expect for our customers. This is complimented by our company-wide customer first and vulnerability training programmes.
- Our Regional Customer Service Managers are responsible for embedding a customer first culture and supporting our operational teams to develop and deliver tailored customer service plans.
- In 2022 we developed our Operational Excellence guide which all colleagues and Service Providers received to set high expectations and guidance for our teams.

Swiftly handling complaints

- We work hard to avoid receiving complaints, but when we do get them, we want to resolve them swiftly delivering the right outcome for our customers. During 2021-22 we saw a significant increase in complaints on the back of a difficult storm season. Whilst complaint volumes fell from this peak they still remain higher than the period prior to Storm Arwen.
- This continued to affect our complaint resolution performance. However, we have still improved greatly in 2022-23 with Day+1 complaints improving by 9.6pp. As a result of our on-going activity to improve our overall customer experience and get things right first time we have seen a 43.7% reduction in the volume of complaints since the beginning of the ED1 reporting period.
- We have also continued to enhance our processes devolving resolution to our regional customer service teams to give a quicker and more effective resolution for our customers.

What's next for improving our customers service?

Moving into the 2023-28 period, we will further enhance our range of contact channels, to ensure all customers can get in touch through their preferred method.

Improve customer satisfaction by introducing new contact channels, greater on-site support and choice in booking slots for planned services, providing increased choice and flexibility in how and when customers do business with us.

We will enhance our website to improve the user experience and make it easier for customers to access the information they need, we have already begun this with the improvements to the power cut logger and this will continually improve across the 2023-28 period.

We will deploy a new team of Pro-active on-site Responders, who will respond to longer duration faults and provide customer information and support on site.

Improve the speed of complaint resolution, resolving 90% of complaints within one day.

We will significantly ramp up our proactive contact commitments to contact all priority services customers who experience an unplanned interruption while also improving the data quality of the priority services membership to ensure our records are as up to date as possible.

We will develop a mobile application to further build our membership benefits for priority services customers whilst bespokeing our outreach campaigns to engage those hardest to reach.

Expand our customer service offering to provide support for flexibility providers and data users

This includes increasing the services we deliver for large customers, electricity suppliers and Independent Distribution Network Operators, working collaboratively to provide tailored support on flexibility products and services.

We will expand our evening and weekend appointments to our Connections Quotations services as well as other improvements to our connections process and delivery across both small connections and large connections. This is covered in more detail in the connections section on pages 44-49.

Pro-active responders

Providing on-site support when customers experience long duration faults.

Engagement from stakeholders tells us that customers find power interruptions harder to deal with the longer they go on for, with the six-hour mark being the point at which customers really start to face difficulties.

To combat this, we have committed to building a team of dedicated On-site Responders who will visit customers on longer duration faults.

These Customer Service specialist are able to give up to date fault information, provide a range of support services and signpost customers to both external support and our Priority Service Membership.

We launched a trial of this service in January 2023 with Responders using upgraded Customer Service Vans to visit customers if their interruptions exceeded six hours.

8,552

customers supported through deployments

1,282

vulnerable customers supported face-to-face

As a dedicated resource, Responders were out every day, providing various forms of support such as providing hot meals or drinks, winter warmer packs, charging facilities and on-site PSM sign ups. The trial was a great success with support deployed to over 8,500 customers.

We have now put this support into full mobilisation, with 12 dedicated On-site Responders recruited to work across four operational hubs that will cover customers across our network.

6,508

personalised services provided to customers on-site

24

dissatisfied customers resolved on-site through our support



We continue to support the most vulnerable in our region - Our 'Powergrid cares' programme has delivered financial benefits of £7.3m to over 22,000 customers in the 2015-23 period.

Our commitments

- Our regions have some of the highest levels of vulnerability across the UK. Our ED1 business plan commitments set out to deliver the best possible support to our vulnerable customers through the use of effective partnerships, tailored services and meaningful engagement in our communities.
- We made strong progress in delivering our ED1 commitments with all but one delivered in full.
- Our ED1 programme upgrading electrical connections in high rise tower blocks was significantly impacted by COVID-19 with restrictions on access due to social distancing and safe working measures. Our programme still saw upgrades through £1.2m investment but the majority of upgrades will now be completed in ED2, where we have a further £13.3m of investment planned.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Route calls from Priority Service Customers directly to contact centre advisors, bypassing automated messaging	Delivered	2015-16
Build partnerships with organisations to help us deliver our social programme	Delivered	2022-23
Promote and raise awareness of our Priority Services Register to and with other partner organisations	Delivered	2022-23
Enhance our training for front-line staff providing additional support for Priority Service Customers	Delivered	2018-19
In conjunction with local authorities, identify socially-deprived areas and prioritise our support towards them during a power cut	Delivered	2020-21
With others, explore the feasibility of community-level aggregated-demand response in return for a community rebate	Delivered	2018-19
Introduce friends and family register and 'good neighbour' scheme to support vulnerable customers	Delivered	2018-19
Explore the possibility, with Northern Gas Networks, of upgrading to electrical connections in high-rise tower blocks for safety reasons	Delivered	2022-23
Explore solutions to connect rural communities to the network	Delivered	2022-23
Provide more customer support vehicles along with more services in them	Delivered	2018-19

Going beyond our plan

£7.3m benefits delivered

Our fuel poverty programme has delivered significant benefits across the 2015-23 period, with 9,000 customers directly benefiting in 2022-23 alone through community outreach and fuel poverty training courses.

75,000 proactive contacts

Our proactive contact of medically dependent customers during unplanned power cuts in 2022-23 helped 75,000 of the most vulnerable in our region be better supported. This has been extended to all PSM customers in 2023-24.

170% increase in sign-ups

We worked with BluMilk to run trials using new PSM recruitment media including iVans and targeted online adverts in Q4 2022, resulting in a 170% increase in direct sign ups compared to the same period in the previous year.

Supporting the vulnerable in our region...



970,000

priority services members
receiving an enhanced service



£100k

funding awarded in 2022-23
across 8 community projects



89%

satisfaction in power cuts in
2022-23 for our PSM

Our engagement

We collaborated with other DNOs to examine the sector's approach to supporting vulnerable customers should 3hr rolling power cuts be required to conserve electricity supplies.

We engaged with customers across the region with varying demographics and vulnerabilities to identify barriers of engaging with the Priority Services Register and associated services.

We tested our current offering of fuel poverty services by conducting thorough engagement with delivery partners.

We also explored the barriers to accessing services and stakeholders gave us insights to help us better understand the complexity of customers' needs. We used social mapping data to support what we were hearing from stakeholders. This led us to identify key population groups and geographies that were not accessing our services, including the Deaf Community, people of colour and people living in some of our most deprived regions.

We have engaged with thousands of customers and stakeholders to shape our understanding of the factors that put our communities at risk of being left behind.

What our stakeholders said...

That effective preparation and communication for vulnerable customers is vitally important should such measures ever need to be implemented.

Customers didn't like to be identified as vulnerable. They felt the word 'register' had negative connotations associated with it. They wanted to better understand the benefits of being a member and how it would help them.

Stakeholders supported targeted services based on an understanding of their needs. Fuel poverty is not a stand-alone issue. It is often interdependent with other vulnerabilities that need to be addressed holistically.

Northern Powergrid has a clear role in prevention, not just addressing those with acute needs. Our local knowledge and partnerships are key to successful engagement, interventions, and support.

Stakeholders highlighted that with elevated need during the cost-of-living crisis it was important to ensure that our support reached those in hard-to-reach groups.

Customers typically face barriers in terms of affordability, accessibility, usability and knowledge. Customers often don't trust that new technologies will work as well as their existing systems. Barriers are consistent across consumer groups but are exacerbated by particular vulnerable circumstances.

What we have done...

We took best practice communications material from SSEN as the basis, and produced our own approach, tested it through a series of webinars with key stakeholders, and sent out the communications.

We previously rebranded our Priority Services Register as our Priority Services Membership (PSM). We have also agreed with customers to develop the PSM membership with an App and have updated our Welcome Pack to provide a clearer explanation of the benefits of being a member.

We introduced new fuel poverty guiding principles (covered overleaf). We also hugely scaled up our fuel poverty programme to reach more than twice the number of beneficiaries annually. These expansions are targeted to the areas and customer groups who need the support most. This allows our customers to access holistic advice focused on sustainable solutions like income maximisation, debt advice and referrals for further employment support. This is complemented by our new Home Decarbonisation advice service, which provides advice on accessing grants and funding to make our customers' homes more energy efficient.

We have developed a portfolio of services, support and initiatives that we will increasingly deploy to support customers in the energy system transition designed to directly address our understanding of customer needs and the barriers they will face in participating in evolving energy markets.

How we've done in 2022-23

- Every year our regulator Ofgem runs a Stakeholder Engagement and Customer Vulnerability (SECV) Incentive where it ranks the six DNOs according to their progress in these areas. In 2022-23 we were placed a disappointing sixth. We have ambitious plans to address this shortcoming in the ED2 period, with several innovative new vulnerable customer projects already in full flow.

Promoting our Priority Services Membership

- To best help our vulnerable customers, we need to know who they are and what their needs are. We do this through our Priority Services Membership (PSM) which enables us to engage with customers in the right way and offer tailored services that best suit their needs.
- Following targeted research into the barriers and challenges of engaging with our Priority Services Register, we ran a campaign in the winter of 2020 to re-launch it as a membership club. Our stakeholders told us they did not want to be added to the register as it carried negative associations. As a membership club, customers do not need to identify as vulnerable to engage and joining is intended to offer peace of mind to members.

- We continued to refresh our PSM data in the year to ensure our records are accurate. We had around 820,600 members at the close of the 2021-22 period but this has grown significantly in 2022-23 to 970,000. This year we saw a record number of direct sign-ups as a result of our own recruitment activities, with direct sign ups growing by 156% year-on-year.
- We also continue to look for innovative ways to reach our vulnerable customers. This year, we worked with BluMilk to run trials using new PSM recruitment media including iVans and targeted online adverts. The campaign, which ran in Q4 of 2022, resulted in a 170% increase in direct sign ups compared to the same period in the previous year.
- We use data analytics to inform recruitment of new members, specifically those categories of vulnerability that are underrepresented – one category being customers who are deaf or hard of hearing. This has led us to provide a holistic fuel poverty service including PSM sign-up through a specialist organisation in Sheffield. We have also run radio adverts and roadside advertising campaigns to capture digitally-excluded eligible customers.

Our performance measures

Measure	Actual Performance	Target	Status
Stakeholder Engagement & Consumer Vulnerability score (& rank)	3.30 (6th)	8.00	Missed
Power cuts - Customer satisfaction (PSR)	88.8%	85.0%	Achieved
Power cuts - Restoration within 6 hours	95.2%	95.0%	Achieved
Power cuts - Restoration within 9 hours	98.1%	98.0%	Achieved



Partnerships

- We continue to build on our partnerships and establish new ones as part of our consumer vulnerability strategy. Through the challenges of COVID-19 and its legacy, it has never been more important that we work together to reach and support our most vulnerable in our communities.
- We work closely with Local Authorities, providing advice and guidance on how to encourage eligible residents to sign up to the PSM and how to refer into our Powergrid Care services. We have also worked with the North of Tyne Combined Authority, supporting their development of a one-stop-shop advice centre for home decarbonisation.
- In 2022-23, we undertook a strategic review of our partnerships alongside Northern Gas Networks, whose customer base is very similar to ours. This allowed us to map our joint service provision and target new partnerships to key areas with less service availability, including Doncaster, Barnsley and Redcar and Cleveland – where we are now providing enhanced support offerings.

Supporting our most vulnerable during a power cut

- A key component of our strategy is to offer support services to our most vulnerable customers during a power cut. Whenever a PSM customer calls they bypass our interactive voice recognition system and get straight through to an agent.
- We also reach out proactively to our Medically Dependent customers during unplanned interruptions, with over 75,000 such customers contacted during 2022-23. For ED2, we have extended this service to all PSM customers.
- In 2022-23, the average satisfaction score from PSR customers was 88.8%.

Affordability and fuel poverty

- Affordability of our services continues to be a key priority for our stakeholders. We re-assessed our provisions for customers in fuel poverty via in-depth research to better target our engagement in communities that experience high instances of fuel poverty. We have introduced new fuel poverty guiding principles:
 - i) Our work targets those most in need through data and intelligence
 - ii) We partner with local trusted experts who have a developed understanding of our customers' needs
 - iii) We address the individual and their issues holistically, providing an average of 4-5 hours' 1-1 support
 - iv) We tailor services to meet individual needs at multiple entry points
- Our fuel poverty programmes delivered record benefits in 2022-23. In total 8,998 customers directly benefitted from our core programme in the year, resulting in combined benefits of £2.7m. A further 55,000 customers saw benefits through our community outreach programme and fuel poverty training course.
- Across ED1, we have supported an estimated 164,000 customers, including piloting the delivery of energy saving App to nearly 5000 households and directly supporting 17,400 individuals through our partnership with citizens advice.

What's next for supporting the vulnerable in our region?

As we move into the 2023-28 period, we continue to improve the support we offer vulnerable customers and improve the accessibility of the services we provide.

We have already significantly ramped up our proactive contact offerings to contact all PSM customers when they suffer an unplanned interruption. In the first two quarters of 2023-24 we have already made over 225,000 such contacts.

We have built a dedicated team of Proactive Responders to support customers on site during longer duration faults. Our responder vans come equipped with a wide range of support tools and have already resulted in a significant ramp up in our total services offered to vulnerable customers.

Where vulnerability training is concerned, we will increase our in-house capabilities to train staff on vulnerability issues and increase the frequency of customer vulnerability training for all colleagues.

Colleagues who have face-to-face interactions with vulnerable customers will also benefit from additional enhanced training that examines regional specific challenges, and we will coordinate with our wider customer-first training to ensure that vulnerability issues are covered.

Similarly, we will enhance the roles of our vulnerability champions to empower decision making, raising the profile of these issues throughout the business.

Vulnerability issues will also feed into our practical decision making on a routine basis. For example, when considering the priority of network resilience investments, once our standard criteria have been met, we will then use vulnerability criteria to prioritise resilience works where they can deliver benefits for vulnerable customers.

We will also continue to strengthen our existing partnerships and seek to build new ones as we move forward. We will utilise our newly formed partnership with MIND to tailor our contact centre induction training to ensure our colleagues offer the best support and advice for those dealing with mental health issues. We have already grown our fuel poverty programme from delivering for 9,000 beneficiaries in 2022-23 to a forecasted 20,000 in 2023-24. This includes establishing 8 new partnerships with local expert charities and CICs. We have also set up our home decarbonisation advice service to benefit 5,000 further customers.

Our draft business plan for ED2 contains a further £13.3m of investment to upgrade electrical connections in high rise tower blocks as a continuation of our programme which was delayed by the COVID-19 pandemic.

Support for those in Fuel Poverty

The most recent government data shows that 14.4% of the households in the North East region and 17.5% in Yorkshire and Humber are in fuel poverty, against 13.2% of households on average across England.

The cost-of-living crisis has greatly exacerbated an already difficult situation for our customers, pushing more families into fuel poverty while increasing the fuel poverty gap experienced by customers previously affected. We responded decisively to this crisis.

Our priority over the past year has been to increase the support delivered to customers to mitigate the impacts of rising fuel poverty levels. We doubled our investment in the fuel poverty programme to empower local experts in delivering the support customers needed.

We scaled up the successful Green Doctor initiative. This helps thousands of households save money on their energy and water bills, providing tailored advice on making homes more energy efficient (including via home visits) as well as support with accessing grants.

During September-October 2022, we co-funded 48 Green Doctor sessions to support an estimated 3,600 customers in gaining access to invaluable energy-saving advice. Green Doctor also visited homes in Darlington to carry out energy audits and provide bespoke advice, reaching almost double the number of home visits they

would typically hold over the same period.

The Community Partnering Fund has been in place for several years as a vehicle to fund community groups in our region. Its core objectives include alleviating hardship associated with fuel poverty. We doubled our investment in response to the cost-of-living crisis.

The additional support was critical to our communities as evidenced by the fund receiving a more than two-fold increase in applications. York Community Energy was among the many organisations funded.

They are a community benefit society whose aim is to reduce York's carbon emissions by both saving energy and generating community-owned renewable energy.

Our funding enabled the provision of advice and handholding to households in York in all aspects of managing and reducing energy bills and provide a free service for vulnerable and low-income householders.

9,000

customers directly benefitting from our core programmes

£2.7 million

of benefits realised for our customers



We have delivered our smart grid enablers programme and have made positive steps in developing flexibility options on our network.

Our commitments

- Our smart energy commitments are enabling us to lay the foundations needed for decarbonising the energy system in the coming years, through increasing network flexibility, opportunities for customer flexibility, and the visibility of power flows on our network.
- Our flagship smart grid enablers programme is central to our plan to unlock a low carbon future and ensure a smooth transition to Distribution System Operation (DSO), covered in more detail on pages 50-53.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Invest £83m in smart grid enabling technology that, as a minimum, pays for itself by 2031 – the more likely result will be a much larger saving, possibly as high as £400m-£500m	Delivered	2022-23
Invest £52m in smartgrid network reinforcement that pays back by 2023 through avoiding £86m of traditional reinforcement – a net saving of £34m compared with traditional reinforcement methods	Delivered	2022-23
Provide opportunities for customers to participate in demand-side response to reduce the cost of running the network	Delivered	2022-23
Modify our trading and customer service systems to realise benefits from the new smart meter data	Delivered	2022-23
Use smart meter data to optimise network investment and reduce losses	Delivered	2022-23
Trial the potential for combining smart grids and smart meter data to provide additional information services	Delivered	2022-23
Establish a dedicated team of technical staff to perform timely modifications to our equipment when they are needed to enable the smart meter installation to proceed	Delivered	2018-19

Going beyond our plan

Replaced 24,000 looped service cables to enabled low carbon technology

Utilised voltage reduction to free up 4.5GW of capacity across 497 substations

2,600 LV monitors installed, twice as many as our original commitment.

Delivering a future-ready network today...



£74 million

investment in our smart grid programme



433MW

of active network management operational



8,900

secondary SCADA communication systems replaced

Our engagement

Following our first round of flexibility tenders, we carried out in-depth engagement with stakeholders, including a survey and extensive discussions

What our stakeholders said...

Introduce more transparency and standardised flexibility products to stimulate market participation.

What we have done...

We developed our approach to flexibility by encouraging new market participants and improving the procurement process. Including:

- i) Simplified bidding process and reduced the minimum threshold for flexibility from 50kW to 30kW in line with stakeholders' requests.
- ii) We collaborated with third-parties to publish information on how flexibility from EV charging would be baselined to provide clarity sought by stakeholders in advance of the next tender.
- iii) We changed the tender process to make it more suitable for aggregator providers and domestic customers by not requiring the use of the Open Networks project's common contract for flexibility services.

We challenged our method of checking flexibility zones and developed a new approach to generate more accurate results by encouraging potential bidders to send us their site details as soon as possible so we could carry out the check before they submit a bid.

How we've done in 2022-23

Delivering smart grid enablers

- In the year we invested a further £17.4m in smart grid enablers, taking our total spend in ED1 to £74.3m.
- In the early years of our programme, we encountered more technical challenges than anticipated coupled with a requirement for substantial recruitment and training of engineering staff. The impact of COVID-19 and safe working restrictions to counter the close proximity of staff also slowed delivery compared to our original plan. However, we were able to significantly ramp up to a full-scale roll-out across all workstreams in the last two years of ED1, delivering nearly £37m in investment in that period alone.
- Our business plan envisaged £52m of additional smart grid reinforcement would be required on the network. Once again this was impacted by COVID-19, alongside a lower-than-expected uptake in low carbon technologies (LCTs) in the early years of ED1. However, we continued to get our network ready for future rapid uptake, investing a total of £47.6m on smart-grid reinforcement in ED1.
- We're in the process of replacing looped-service cables (the cable used when two properties share a single electricity supply) to enable the installation of LCTs such as heat pumps and EV chargers.
- In 2022-23 we replaced almost 6,000 further looped service cables, meaning by the end of ED1 we have replaced over 24,000 of these at a cost of over £15.4m. We're also freeing up capacity on our network through voltage reduction at 497 of our major substations. This has released 4.5GW of capacity in the ED1 period.

Transitioning to Distribution System Operation (DSO)

- We continue to collaborate with other energy industry parties – including National Grid ESO, flexibility providers and other DNOs through Open Networks projects – to prepare our systems, skills and data for distribution system operation.
- We go into more detail on how we have established our distribution system operational capabilities on pages 52-55.

Our performance measures

Measure	Actual Performance	Target	Status
Smart Grid investment (2012-13 prices)	£74.3m	£83.1m	Outcome achieved
Smart Grid network reinforcement (2012-13 prices)	£47.6m	£51.9m	Outcome achieved
Smart meter intervention rate – Cat A	80%	90%	Missed
Smart meter intervention rate – Cat B	91%	90%	Achieved



Increasing flexibility on our network

- During the year we continued to look for opportunities to use flexibility services as an efficient option for managing load.
- We ran competitive tenders in autumn 2022 and spring 2023 to enable reinforcements deferral at 12 locations. We appointed our first flexibility services providers, and those services are now operational
- We published our latest flexibility services procurement statement in March 2023. This sets out our flexibility services needs and proposed tendering process and pricing strategy for the year ahead, giving stakeholders the visibility and opportunity to comment on our plans.
- We continue to collaborate with our peers via the ENA Open Networks projects on standardised approaches to flexibility services as the market develops.

Rolling out Active Network Management

- Active Network Management (ANM) is another important part of harnessing flexibility in our smart grid plans. We are installing technology on our network that provides real-time information on the levels of electricity demand and generation so we can see how close the distribution network is to its capacity limits.
- Alongside this, we've agreed contracts with customers who generate electricity, allowing us to limit the amount of electricity they can generate when required. In return we offer them more cost-effective connections. This means we can avoid the cost and disruption of reinforcing the network through the traditional method of installing new cables and substations.
- By the end of ED1 we had 433MW of contracted and connected flexibility across four sites, and we now have several hundred MW of ANM in the pipeline that we will commission during ED2.

Preparing our systems for smart meter data

- At a national level, the smart meter roll-out programme continued to face technical issues and delays – this was also impacted by the pandemic. As a result, we are still experiencing lower than forecast connection of meters and a lack of the data we see from these as a result of technical issues with the national system in the north of the country. This has had an adverse impact on our planned activities to use the data in order to deliver benefits for our customers.
- That said, we are doing all we can with our internal readiness. In 2020-21 our Data Privacy Plan was approved by Ofgem and we have delivered on a number of key projects that use smart meter data to identify and verify power outages. Our internal preparations to use the data to upgrade our trading and customer service systems have continued in preparation for ED2.

What's next for smart energy in our region?

We'll continue to invest significantly in smart grid technology in ED2 and realise £156m of benefits from flexibility and smart grid investment.

These investments will help enable our distribution system operation and underpin our flexibility first approach, this is covered in more detail on pages 50-53.

We will continue to develop initiatives that help us to manage the network in real time including enhanced Active Network Management and high voltage regulation.

On our high voltage network, our smart grid enabling investment provides us with a more robust and modern Internet Protocol (IP) Supervisory Control and Data Acquisition (SCADA) communications network, which is a foundation of our 10-year network automation plan starting in 2023.

We will maximise the value of this investment by increasing automation and investing in upgrading our control systems to help restore power more quickly. This is covered in more detail in the reliability section on pages 22-27.

We will continue to work with industry parties, the service providers of the network and our systems provider to extract value from the investments made in the national smart metering infrastructure, focusing on resolving issues and accessing data where feasible to realise benefits for our customers.

We will also develop a new specialised smart-grid technician apprenticeship in ED2 to train people for new dedicated roles in managing a more digital network going forward.

We plan to use smart meter data to optimise voltage improving the energy efficiency of customers' equipment, with a view to saving each customer up to £20 p.a. on their electricity bill

We continue to outperform our ED1 targets in connections customer satisfaction and our new online quotation system delivers quotes to customers faster and more efficiently.

Our commitments

- Our overall objectives for connections in ED1 were to improve customer service; connect small works customers 30% faster, and make better use of digital channels and technology to provide a personal and tailored services.
- For our small works customers, this meant significant improvements to our services, and we've seen significant growth in customer satisfaction levels over ED1 facilitated by on-site face-to-face services and new systems such as our award winning AutoDesign budget estimate tool.
- For our medium/large works customers, we have delivered all of the actions from within our ICE plan in the ED1 period and implemented an account management framework that provides a single point of contact for customers.
- During ED1 we delivered on five of our six connections commitments. Our final commitment, to reduce routine small works connections lead times by 30% in ED1, has taken a little longer to achieve, but we are now starting to see impressive results in this area.

What we've delivered in the 2015-23 period

Commitments	Status	Completion
Reduce end-to-end connection timescales for small works by more than 30%.	Missed (82% delivered)	2022-23
Better payment terms - customers will not need to pay as far in advance.	Delivered	2015-16
Provide more flexible quotations, including online self-service and faster quotes.	Delivered	2019-20
Introduce a web-based system to help customers understand the capacity on our network and the likely cost of connection.	Delivered	2016-17
Implement a tailored service for large projects, including 'account management' where needed or requested.	Delivered	2019-20
Provide a better service for non-contestable elements of work - regularly publishing key indicators.	Delivered	2015-16

**Since the introduction of our online quotation capability during 2022-23 we have achieved a reduction in connections lead times of 34% vs our ED1 baseline.*

Going beyond our plan

Autodesign and Self-serve

Our award winning online budget estimate tool was implemented in January 2020, we followed this up with our full self-serve quotation system in November 2022.

Quote-on-site capability

We also implemented an on-site quotation capability which allows our expert technical teams to deliver more accurate quotes in real time with the customer.

88% customer satisfaction

In the final quarter of the regulatory period our customer satisfaction for connections was 88%, 4th out of the DNOs, just 0.7% behind 3rd place and 3% higher than our ED1 target.

A faster, more customer-focused service...



25%

reduction in our small works lead-time



99.8%

success rate against our guaranteed standards of performance for major works (3 missed in 1,500 quotes)



7.4%

improvement in our connections customer satisfaction

Our engagement

We completed a detailed deep dive into our weekly Connections customer satisfaction surveys, the lowest performing of our customer satisfaction areas.

What our stakeholders said...

The key feedback in 2022-23 was customers were dissatisfied with the cost and complexities of some of our services. They wanted more self-services and improved communication between us and them.

What we have done...

With improvement priorities established, we now engage with our Executive team through a weekly reporting pack and quarterly sessions to ensure that there is an organisational commitment to offering excellent customer service.

We developed and built an online self-service platform for small works connections and made changes to our payment approach from a 12-day ahead payment to a payment on acceptance approach which is simpler for customers.

We improved the accuracy of our quotations, driven by cable route drawing and material generation to ensure that our customers benefit from receiving a more accurate quote estimate for their home visit.

We integrated Oracle CRM onto our self-service system to drive improved customer communication and messaging, resulting in real-time information being relayed to our customers by our technicians.

We worked with installers to take a fresh look at the process for installing EV charging points and heat pumps from a customer perspective to ensure that the connection process is as smooth as possible.

We further engaged with informed customers as we developed our new system to ensure they were involved in the decision making at each stage of development.

We learned that our application process is unnecessarily complex and rigid.

In response to this feedback, we made changes to our application system, in doing so we made changes to how customers can notify us of new connections to the grid.

We are working with stakeholders and customers to understand their LCT connections journey to offer bespoke services. Actions include developing a stakeholder "heat map" by tracking our stakeholders' goals and understanding what funding they have access to, enabling us to develop a likely view of where connection priorities will occur.

We advised customers on how they could avoid network upgrades when possible. When customers approached us with multi-site applications, we work with them to identify and advise how they could avoid network upgrades and minimise our involvement in their scheme where possible.

How we've done in 2022-23

Improving customer satisfaction

- This year, our small works connections customer satisfaction was 7.4 percent higher than the start of the ED1 period and outperformed our target of 85%.
- We continue to receive positive feedback for the tailored services we offer with our innovative AutoDesign tool continuing to deliver for customers, in particular as demand for low carbon technology (LCT) connections such as heat pumps and EVs increases.
- This year, we extended the facilities for customers to quickly retrieve the information they need by launching our new self-serve quotation system. Feedback for this new system has been excellent with customer satisfaction for quotations climbing 2.4 percent since launch.

Reducing connections lead times

- We saw significant progress in our efforts to reduce our end-to-end connections lead-times, seeing a 25% reduction in time in 2022-23 against our ED1 baseline, an 8% year-on-year reduction.
- We have seen a significant increase in connections volumes for LCTs along with the regional telecoms fibre rollout. We have scaled our resources to respond to these increasing demands and significantly increased our regional connections delivery team in 2022-23.
- We have continued to improve throughout this year, with a 34% reduction achieved by the final quarter of ED1.

Delivering improvements for major works customers

- We successfully delivered all 11 actions in our 2022-23 ICE plan. Improvements included the publication of different data sources that we make available and formalised the process whereby stakeholders can request network data and information to receive a more timely and efficient response. This included details of known constraints on the transmission and distribution network to provide stakeholders with better information about the likely impact on their project timescales and costs. We also provided information on flexible connections and how to make changes to an existing arrangement. Our pre-application process to provide stakeholders with better upfront advice and support to explore options before making a formal application.

Providing our customers with open data

- We continue to develop our customer led smart-grid. An integral part of this is ensuring that our customers have access to data that enables effective planning and cost efficient interactions with us.
- Our Autodesign tool offers customers a self-serve option to look at network capacity for LCTs.
- In 2022-23 we further increased the capacity for customers to access the information they need quickly by launching our online self-serve solution for connections quotations. This allows customers complete a quotation themselves through our Oracle-CRM system, access details on their application and track the progress of their connection.
- In December 2021, we published our Distribution Future Energy Scenarios (DFES) and worked closely with the Open Data Institute to develop a DFES visualisation, which provides a heat map of our network that further enriches information that our stakeholders have access to.

Maximising network capacity

- A key element of our customer-led smart grid is enabling our customers to assess the capacity of our network.
- We publish generation and demand availability through our heat maps to make sure that customers know where they can potentially connect low carbon technologies (LCTs) such as solar panels and electric vehicles, at as low a cost as possible.

Our performance measures

Measure	Actual Performance	Target	Status
Broad Measure of Customer Satisfaction - Connections	86.1%	85.0%	Achieved
Average Time to Quote (LVSSA)	7.5	4.8	Missed
Average Time to Quote (LVSSB)	12.8	7.8	Missed
Average Time to Deliver (LVSSA)	39.5	39.3	Missed
Average Time to Deliver (LVSSB)	58.1	47.9	Missed

- We have extended our heat maps, so now, not only can customers view interactive generation and demand heat - they can also obtain a view of known constraints on the transmissions network.
- In addition, Active Network Management areas are enabling us to maximise network capacity in a real-time environment and reduce costs. We currently have 433MW of contracted flexibility operational across 4 sites with further improvements planned for ED2.

Facilitating competition in connections

- We remain committed to supporting competition in connections. Our connection input services team are constantly looking for ways to streamline our input services, allowing Independent Connections Providers (ICPs) and Independent Distribution Network Operators (IDNOs) to compete more freely.

Transmission network access

- New projects critical to net zero, such as renewable generation and battery energy storage, are currently facing delays of up to 15 years to connect to our distribution system due to reinforcement being required on the transmission system. Finding solutions to overcome this transmission congestion has been a significant focus in 2022-23 to ensure that pathways to decarbonisation via low carbon technology (LCT) installation are not inhibited.
- Our involvement in the Energy Networks Association's (ENA's) Strategic Connections Group provided us with the opportunity to collaborate with the Electricity System Operator (ESO), other DNOs and policy makers (Ofgem and the Department for Energy Security and Net Zero).
- Our objective has been to implement changes to the connections process, allowing for 'quick wins' to customers seeking connections to the distribution network. Some of these changes include: cancellation of projects that are not proceeding in the queue, having delegated technical limits for DSOs to carry out local queue management and promote projects in the pipeline that are ready to connect, and reforming the distribution connections pipeline to incentivise the installation of LCTs.
- We have also been engaging with the ESO's Connections Reform project and 5 Point Plan which aims to implement transparent rules and structures to expedite connections on the transmission system, and more efficiently manage the future transmission system access connections pipeline.
- In the year, we commenced routine quarterly updates for stakeholders that we convened for our customers along with the transmission parties – system operator and transmission owner. Going forward we have plans to host regular Transmission System Congestion webinars alongside these other network operators to provide our stakeholders with clear and transparent updates on our approach as we continue to look for improved solutions to this problem, with recognition on the far-reaching implications of this matter. One of these solutions includes describing transmission constraints at each GSP on our interactive heat maps, which are currently available on our new Open Data Portal (which was launched in December 2022).

What's next for Connections?

We will deliver a cost-effective, efficient and personalised service for all our connections customers, with smarter, more flexible solutions that enable the connection of low carbon technologies on to our network and support of the transition to net zero.

We will continue to work on reducing our connections lead times, aiming to take this metric beyond the 30% reduction we achieved in ED1 - balancing this objective with the needs of our customers and maintaining the current levels of service we offer.

We will continued to increase the size of our teams on connections to provide customers with more time to ensure they receive the service needed including site visits to discuss their requirements in detail.

We have also introduced a new Quality Assurance Officer role within the team to ensure that our service is consistently delivered across the team and we will be expanding this so each of our six regions has their own assurance officer.

Customers are now able to apply for service upgrades through our Oracle-CRM system and we will continue to expand the use of this system for other aspects of the service upgrade process to improve the service we provide.

Our engagement with Local Authorities will continue to focus on the decarbonisation agenda, specifically around EVs and their strategies for roll out across public car parks and shared/residential parking spaces.

We will facilitate the mass uptake of LCTs, flexible connections and network flexibility to support the drive to net zero.

Our continued use of open data will help empower our customers to make more informed decisions about how and where to connect by expanding the scope of network information.

We will continue to facilitate fair and open competition so that our customers have a choice in who delivers their connection.

Ultimately all this will help deliver an efficient connections service for all our customers, at low cost, while providing more technical advice to customers on smarter and more flexible solutions.

Online Connections Quotations

Providing a self-service platform for customers wishing to connect to our network

Our weekly customer satisfaction survey provides feedback that allows us to prioritise our services requiring most improvements. This is particularly important in Connections, which has traditionally been our lowest scoring area for customer satisfaction. The key feedback in 2022-23 was customers were dissatisfied with the cost and complexities of some of our connection's services. They wanted more self-services and improved communication between us and them.

In response to this feedback, we developed and built an online self-service platform for connections. This allows customers to complete a quotation themselves online through our Oracle-CRM system, access details on their application, and track the progress of their connection. This system not only saves time for the customer but also allows us to integrate the communication channels available within Oracle to drive improved customer communication and messaging, including allowing real-time information to be relayed to our customers by our technicians.

Since launching the self-serve functionality in Quarter 4 of 2022, we have seen a significant improvement in small work's connections customer satisfaction, with scores in this area improving by 2.8 percentage points. Customers find it easier to access the information they need through the website and satisfaction with our communications have improved by 2.2 percentage points. Facilitating more self-serve applications also allows us to process a higher volume of applications without having to increase our workforce, something that will have cost saving benefits for our customers.

2.8%

higher connections satisfaction score up to an average of 9/10 from our customers

2.2%

improvement in satisfaction with our communications



Our distribution system operation strategy, promoting customer and network flexibility, is at the heart of our plans to lead regional decarbonisation.

Our commitments

- Our existing duties as a DNO already require us to operate an efficient local electricity system - but for our region to meet the national commitment to net zero emissions by 2050, we need to facilitate efficient whole energy system decarbonisation. This requires a step change in how we operate and design our network.
- We have a key role to play in facilitating regional decarbonisation by fulfilling the functions of Distribution System Operation (DSO). This means investing in people, processes and systems to actively manage our network to optimise the use of our assets and generated energy in our region. By doing so we will be able to facilitate decarbonisation as cost-effectively as possible to meet our government's net zero targets.
- Planning and policy around how functions of Distribution System Operation should develop continue to evolve. In 2022-23, we were carrying out much of the foundational work required to meet the needs of the Baseline Expectations that Ofgem has set out for us in the 2023-28 period and we continue to actively participate in dialogue with other industry players, Ofgem and Government on the ongoing development of these functions.

Our five principles of DSO

1. Flexibility First

Develop and deploy agnostic flexible solutions as an alternative to network reinforcement where it is economic and efficient. Promote and establish deep and liquid markets for flexibility that enable growth in their use.

2. Whole System Collaboration

Enable whole energy system solutions by engaging with the wider market on our network investment, system management, and flexibility requirements and capabilities.

3. Data & Digitalisation

Facilitate fast, efficient and optimised decarbonisation through open data, insight capability and digital tools, without losing sight of data safety and security.

4. Openness & Transparency

Open and transparent decision making by publishing our investment decisions, flexibility needs and procurement results, and collaborating in joint planning with our local stakeholders.

5. Workplace & workforce fit for the future

Build in-house, regional, and national skills and value through developing knowledge, transferrable skills and an innovative culture.

Engaging for a network ready for the future...

Our engagement	What our stakeholders said...	What we have done...
A comprehensive detailed plan for DSO implementation	Stakeholders wanted to see detailed plans for implementing DSO functions	Our ED2 DSO strategy sets out 21 customer- oriented deliverables, detailing how we will increase the scale and scope of DSO functions in the 2023-28 period. After Ofgem's publication of the Final Determinations in December 2022, we have undertaken further planning and continued regular stakeholder interactions to share details and obtain feedback.
Open and proactive data sharing underpins a successful energy transition	Stakeholders were eager to explore methods to share data more actively to facilitate the transition to DSO	<p>We published our latest Distribution Future Energy Scenarios (DFES) and the new Northern Powergrid Open Data Portal was launched in December 2022, and we transferred existing data products from our external Network Data webpage onto the Portal. This provides our stakeholders with an easily accessible platform to our data products and the ability to self-serve. Users can produce maps & charts from multiple datasets to visualise our network and assess the opportunity for connections based on their bespoke demands.</p> <p>The Local Area Energy Systems Team have frequently engaged with local authorities to collaboratively plan for low carbon technology uptake. Important data about changes to electricity demand, infrastructure, and potential for Low Carbon Technology uptake.</p>
We have a key role in developing local flexibility markets	Stakeholders were supportive of the development of a smart network if it reduces costs to customers and increases efficiency	The Flexibility team in DSO conducted a successful tender round in February 2022, procuring 1.4 MW of flexibility services with GWE Biogas. We subsequently added EV user flexibility contracted with Octopus. Both flexibility service providers receive financial reward in return when operated successfully. DSO plan to procure more flexibility services to help defer costly network reinforcement in ED2 with established platforms, Piclo Flex and Flexible Power.
A transparent flexibility first approach	Flexibility market participants wanted visibility of how flexibility could be used.	<p>The Flexibility Services webpage on our website provides stakeholders with a transparent approach to the procurement and operation of flexibility services. The webpage includes:</p> <ul style="list-style-type: none"> i) annual procurement reports which inform stakeholders, in detail, of the tender process and outcomes; ii) a flexibility procurement statement which verifies our 'flexibility first' approach and code of practice; iii) regular newsletters to inform stakeholders of the most recent updates within the flexibility team; and iv) webinar recordings. The Introduction to Flexibility webinar provides stakeholders with a transparent overview of our approach to procuring and operating flexibility services. Much of this content was newly created in 2022-23.
Supporting regional decarbonisation action planning	Local authority leaders told us they want to develop Local Area Energy Plans (LAEPs) and they need assistance.	In 2022 we established the Local Area Energy Systems Team who, since then, have been interacting with local authorities frequently to support regional decarbonisation plans. Data tools have been created by the Local Area Energy Systems Team to assist stakeholders in being able to visualise our network and assess the opportunity for low carbon technology uptake. Earlier in the year, we provided data and support to North Yorkshire and City of York who produced four LAEPs to cover a significant area of land reaching across our region – the largest geographical spread of any LAEPs produced in GB to date.

How we've done in 2022-23

Refining our plans for operational effectiveness, transparency, and accountability

- Our ED2 business plan set out a detailed set of initiatives to deliver DSO functions in 2023-28 and was led by our engagement with stakeholders.
- Our DSO strategy laid the foundations for our flexibility first approach to decarbonisation investment planning. We will support customer and network flexibility to enable us to decarbonise the whole energy system at the lowest cost, by maximising the value of our existing assets and efficiently utilising green energy when and where it's available.
- Stakeholder engagement undertaken in 2022/23 has helped to refine our approaches to decarbonisation. Valuable feedback has been captured which has influenced our plans and decisions to prioritise initiatives and respond to local regional decarbonisation plans.
- We have held monthly meetings as part of our Business Plan Engagement Group, called Energy Futures, to continuously improve how we engage with stakeholders and how the insights from engagement should influence our decision making. These meetings are reviewed by our Customer Engagement Group – a group of independent experts who have the responsibility of scrutinising our plans and the quality of engagements.

Getting on with it – making progress with the transition

- We are committed to demonstrating an open and transparent approach to the energy transition, earning trust in how we go about our role within the energy system.
- We are already on with delivering the 29 commitments outlined in our DSO Strategy and much of our focus in 2022-23 was on expanding our DSO team, noticeably in the Flexibility team and in the creation of the Local Area Energy Systems Team.
- We continued our community energy engagement programme, delivering in-person forums to aid knowledge sharing and networking, online workshops to upskill in specific areas of need and newsletters to share key updates from the region. We were also delighted to support 8 community organisations with our £50k Net Zero Community Energy Fund, enabling them to initiate new projects and build capacity.

Flexibility first

- We are continually looking to identify opportunities for using customer flexibility in managing our network today, where it is the most cost-effective option.
- In February 2023 we conducted a successful tender round, procuring 1.4 MW of generation flexibility with GWE Biogas. Later in the year we added to this with a contract with energy supplier Octopus to contract flexibility from EV users using smart charging.
- Our stakeholder engagement programme for procuring flexibility services has yielded valuable insights which continue to inform the development of our approach. We engaged directly with a wide range of stakeholders including end consumers seeking to optimise assets, EV charging operators, developers of storage projects and aggregators (spanning domestic demand, EV charging, commercial demand, generation and storage).
- We published our third Flexibility Procurement Statement in March 2023, setting out our expectations for flexibility requirements for the coming year and giving stakeholders the opportunity to comment on our plans.



Improving data sharing

- We published our Distribution Future Energy Scenarios (DFES), and our Local Area Energy Systems Team have been engaging with local authorities and other stakeholders on these scenarios and exploring how we can work together on Local Area Energy Plans (LAEPs) to optimise whole-system decarbonisation.
- We have produced a 'Low Carbon Technology Connections Guide' which provides an overview of our distribution system to help stakeholders understand more about our network and assess the impact of connecting additional demand/generation from low carbon technologies when combined with digital network tools (e.g. capacity constraints, visual pollution).
- We launched the Open Data Portal in December 2022 which increases stakeholders' ability to self-serve and visualise our network. It has built-in tools to allow users to customise maps & charts from multiple datasets simultaneously.

Improving lead-times for large connections

- An evolving issue this year has been long lead-times for new large connections due to constraints on the transmission network. As part of the ENA's Strategic Connections Group, we have collaborated with transmission network companies and other DNOs to design changes to the connections process to expedite customer connections.
- In March 2023, we commenced a series of stakeholder updates where we joined with the transmission parties to update customers on our actions and those being undertaken by the Electricity System Operator.

Innovation

- **Community DSO** - to help develop a new framework for enabling Smart Local Energy Systems (SLES) across the low voltage network. It will look to enable communities to pursue their own decarbonisation agenda by granting further control over energy and assets. This is a major part of our stakeholder low carbon engagement after it was awarded £14.6m of funding from Ofgem's Network Innovation Competition in 2022-23.
- **Boston Spa Energy Efficiency Trial** - saving customers money on their energy bills through voltage optimisation.
- **MicroResilience** - A decentralised group of electricity sources and loads that operate in island mode or connected to the local grid – drastically improving resilience, particularly for remote customers.
- **Artificial forecasting** - building innovative artificial intelligence solutions to expand load forecasting capability at primary (EHV-HV) and secondary (HV-LV) substations in order to provide more granular forecasts - radically moving beyond today's annual forecasts.
- **Inform** - the self-serve project will develop an automated connections estimator to allow site developers to estimate connection costs early in the planning of their development.
- **Diversified Flexible Queue Management** - investigate data defining connected renewable energy and storage in combination with actual power flows at the transmission boundary to ascertain the true constraint issues. This will enable assets to be connected, promoting flexible connections in the connections queue.

What's next for Distribution System Operation?

Our planning and the proposed execution of our next steps is guided by the belief that our transition to DSO should be:

- led by customers' needs;
- provide a compelling value proposition for customers, that promotes sustainability and ethical values by being efficient, fair and inclusive, and better for the environment.
- managed by processes that are neutral and transparent.
- require a right-sized business that can support and enable deep and liquid competitive local markets for flexibility.
- mindful of ongoing changes that will optimise the system as the volume of distributed energy resources increase.

Engagement to support our DSO plan

- Feedback from the Open Networks project has informed our engagement strategy: that includes a mixture of high level reviews of progress and more technical sessions that focus on individual aspects of DSO.
- We have focused our engagement activities on DSO on specific key themes, including energy system data, innovation, climate change, the challenges and interdependencies of decarbonising heat, and low emission vehicles.
- We have continued to engage with local authorities and other regional parties on our Distribution Future Energy Scenarios (DFES). This engagement will inform our updated annual DFES in 2023.
- These potential views of the future are helping us to plan what investment we need to make in the short term to prepare most efficiently for decarbonisation over the coming decades.

Continuing to develop and improve our capabilities to respond to the needs of customers

- We will be focusing on the delivery of our Digitalisation Strategy and Action Plan (DSAP) which underpins DSO functionality.
- We will continue to roll out LV monitoring and also explore the uses of smart meter data to provide better network visibility for decision making.
- We are expanding our workforce and skills to enhance our data and commercial capabilities.
- We expect to procure more contracted flexibility with Piclo Flex and Flexible Power platforms to assist our customers on their journey to becoming Flexibility Service Providers. Flexibility procurement will contribute to defer the need for network reinforcement and reduce costs for customers.
- Our team will be dedicated to the implementation of our flagship Community DSO project, which provides a framework to help communities strategise an effective way to decarbonise collectively.
- There will be a large focus on improving our forecasting processes by embedding new data & advanced analytics, and creating a share-feedback cycle with our stakeholders.
- Increase access through open data to facilitate collaborative system planning will be realised through the creation of a System Visualisation Interface – a single portal through which all of our data is shared, including the addition of LV monitoring data, to empower our local stakeholders.

Innovation is helping us create a smarter and more flexible energy s

Our priorities

- Innovation is a fundamental part of continually improving the quality and value of our services for our customers as well as being a vital part of responding to external changes and emerging risks.
- The energy landscape continues to place increased emphasis on the energy system transition and the tools that will enable it. As a result our innovation strategy re-prioritised innovation towards decarbonisation, reliability, digitalised solutions and value for money.
- As we look forward we are increasingly focusing on solutions that facilitate a “just transition” towards net zero. Our strategy focuses on:
 - i) charting the best course to net zero;
 - ii) achieving next-level energy system dependability;
 - iii) collaboratively unlocking the value of open data and an increasingly digitalised network; and
 - iv) ensuring all customers benefit.



Safety

Vehicle Telematics - using modern telematics systems to improve driving behaviours. Extended reality training and simulation has shown promise, and we are planning to use it for some aspects of training, and we continue exploring opportunities with AI.

Other Projects

Safedig - Allow customers to self-serve network information making it more accessible, efficient and quick.



Reliability & Availability

Microresilience - Our Microresilience project is trialling technologies that will maintain power supplies to critical infrastructure and isolated communities, futureproofing the network for a rapidly changing energy landscape.

Other Projects

Drones - carrying out inspections more efficiently.

Polesight - improve our understanding of pre-fault activity to repair quicker.



Customer Satisfaction

Machine Learning for ETRs - applying machine learning to our estimated time of restoration (ETR) communications to continually improve the accuracy of the information we give to customers.

Other Projects

Boston Spa Energy Efficiency Trial - use network monitoring to create capacity and reduce bills.

Customer Relationship Management - transform customer interactions.



Social Obligations

Customer Led Distribution System - whole system insights into the interaction between network services and wider energy markets, in particular where the value in flexibility lies.

Other Projects

Resilient Homes - battery solutions for protecting the medically dependent.

Rural Electrification - Removing barriers for decarbonisation in rural areas and farming sector.



Connections

Autodesign - web-based, self-service design tool providing customers looking to connect EV chargers with access to high-quality designs, in real-time, at lower cost. 5,000 budget estimates in 2022-23 alone. This formed the basis of our new connections online tool.

Other Projects

Voltage Reduction - Providing additional capacity for multiple small-scale generators to connect to our local network.



Environment

Perfluorocarbon Tracer Additives - Use of Perfluorocarbon tracer (Pft) additives in fluid filled cables has sped up cable oil leak detection, contributing to a 61% reduction in oil/fluid loss compared to our ED1 business plan baseline.

Other Projects

Self healing cables - reducing the cable fluid leakage.

Infrared SF₆ leak cameras - used to detect SF₆ leaks on our assets.

ystem

Our progress in 2022-23

- We spent £4.2m across 15 dedicated innovation projects in 2022-23 (73% of our Network Innovation Allowance). In the ED1 period to date, our innovative solutions have now delivered benefits to customers in excess of £38.5m.
- We work closely with the wider Berkshire Hathaway Energy group to share our ideas, collaborate to develop innovative solutions, sharing international best practice.

Supporting the decarbonisation transition

- Since the start of ED1 the focus of our innovation priorities has increasingly shifted towards techniques to support reliable, low carbon, Distribution System Operation (DSO).
- In 2022-23, we invested a further £17.4m as part of our smart grid enablers programme. This programme is upgrading our capabilities to control and monitor our network in real time for our customers – saving money for customers on their bills.
- We continue to develop our understanding around the potential applications of smart metering data. Our Boston Spa Energy Efficiency Trial (BEET) was authorised in 2019/20 and has since been exploring how data flows from smart meters can be used to improve voltage control and reduce low voltage energy use - assisting decarbonisation and saving customers money.
- Our Distributed Storage and Solar Study (DS3) project demonstrated how clusters of home batteries can increase capacity on the network and enable more homes to install solar panels, without the need for costly network upgrades.

Digitalising our network for our customers

- We continued to expand our award winning Autodesign self-service design tool that provides customers looking to connect electric vehicle (EV) chargers access to high-quality designs, in real-time, at lower cost. We've seen over 5,000 budget estimates being produced from the system in the year, taking us to over 7,000 since launch.
- Our expanded range of web-based services such as SafeDig (access to online network records), is allowing customers to self-serve, accessing more information whilst saving time and cost.

Supporting our vulnerable customers

- Consumer vulnerability is a key priority for our stakeholders and continues to rank highly in our consumer research.
- Design work and customer engagement on our Resilient Homes project, a key initiative for vulnerable customers, is now complete and battery installation has begun. The pandemic-delayed battery installations are progressing. The project utilises a domestic battery solution for ensuring that medically electrically dependent customers remain on supply if a fault occurs on the network.
- We previously moved our SilentPower vehicle, which provides a mobile battery generator to customers in a power cut, into BAU.
- In 2021/22 we were able to show that the SilentPower low carbon solution was cheaper than mobile diesel generators for restoring supplies and since then we have used this solution over 400 times, saving around £270k in two years of operation relative to diesel.
- This is in addition to the CO₂, NO_x, particulate and noise reductions and functionality that allows customers to continue to use their solar generation, where they have it, during a fault.

Where are we focusing our innovation next?

Our ED2 innovation programme will be focused on exploring the following six transformational capabilities that we believe are central to a 'just transition to net zero' strategy:

1. Identifying the opportunities to accelerate the benefits of flexibility
2. Developing sophisticated data management and analytics to inform energy system forecasting, planning and real-time decision making
3. Enhancing the connections process to facilitate higher volumes and different types of connection, including the addition of loads via existing connection points
4. Increasing the dependability of our customers' electricity supply
5. Removing the barriers preventing access to the energy market for all customers including access to energy data; particularly those not currently engaged or informed, vulnerable or less advantaged
6. Creating capabilities to deliver a next-generation local energy network that links up whole system energy sources and vectors, balancing in real time

We have fulfilled our promise to deliver ‘more for less’ in the 2015-23 period – controlling our costs in line with allowances whilst out-performing our business plan targets.

Our commitments

- Our customers continue to place ‘keeping bills low’ amongst their top priorities.
- At the start of the ED1 period, we cut the price that our customers pay for a safe and reliable electricity service by 14%, exceeding our original commitment of 10%. On average, a domestic customer in our region pays £128 (35p per day) for our 24/7 service.
- We also set out to create 1,000 job opportunities in our region between 2015 and 2023. As we close out ED1, over 1300 new employees have joined Northern Powergrid since 2015, many in apprentice roles. This has provided young people with skills that will set them up for life and provides us with the expertise to help ensure the resilience of our network, both now and in the future.

What we’ve delivered in the 2015-23 period

Commitments	Status	Completion
We will deliver an immediate 10% price reduction at the start of the period.	Delivered	2015-16
We expect to create 1,000 job opportunities in the organisation during the ED1 period.	Exceeded	2022-23

Going beyond our plan

1,331 new job opportunities created in our region

£92m of additional investment in the 2015-23 period through delivering efficiencies and reinvesting in our network

£64m more in network resilience

- 58 additional flood defences
- 90km more EHV fluid-filled cables replaced
- additional investment in public safety

£16m more in cyber resilience

- Significantly upgrade our cyber defences to protect against the evolving threat of online and software attacks

£12m in customer service

- upgrade to our contact centre telephony platform
- modernisation of our web interfaces
- Enhancements to our asset management system

Keeping costs low while reinvesting in our region...



£1 million

per day invested in our network for eight years



100%

in line with allowances while delivering 'more for less'



£128

per year - the average annual cost to our customers

Our engagement

We engaged with both community partners and our internal workforce to better understand how we can attract people into our workforce renewal programme from a more diverse background.

In November 2022, 700 colleagues took part in our first Diversity, Equality, and Inclusion survey.

What our stakeholders said...

We should look to increase the diversity of the workforce to be more representative of our region.

What we have done...

We have increased the targeting of our recruitment campaigns by focussing engagement in areas with higher deprivation. We also placed targeted adverts in publications that are popular in the BAME community as well as Pathfinder Magazine, which gives advice to ex-service personnel looking for work in the private sector.

We created the Northern Powergrid Net Zero school programme and are expanding it to local businesses. This is a five-year engagement programme with schools, aimed at increasing awareness, interest and understanding of STEM skills and careers, Net Zero and decarbonisation.

How we've done in 2022-23

Our Regulatory Return (RoRE)

The Return on Regulated Equity (RoRE) measures how much a company has earned on its investment in regulatory assets funded by shareholders. Our overall RoRE for the ED1 period was 8.2% based on our actual gearing (including debt held by our holding company), which we believe is a fair and reasonable return for a company expecting to over-deliver on its business plan.

More detailed information about our returns can be found in our 2022-23 Regulatory Financial Performance report.

Measure	Ofgem Notional Gearing Assumption	Actual Gearing
Return on Regulatory Equity (including Holdco Debt)	9.8%	8.2%
Return on Regulatory Equity (excluding Holdco Debt)	10.2%	6.8%
Northeast Return on Regulatory Equity	10.4%	7.1%
Yorkshire Return on Regulatory Equity	10.0%	6.5%

Strong track record on cost control

- Our business plan commitment to deliver 'more for less' meant we had to make significant performance improvements in the RIIO-ED1 period at new levels of cost efficiency. The cost reductions imposed by Ofgem in its price control settlement for ED1 increased the scale of that challenge. Our actual expenditure in ED1 was in line with allowances. For more information on our cost and output performance see our [Regulatory Financial Performance Report](#).

Responsible tax approach

- It is important that we play our part in society by contributing through the tax we pay. Our tax policy is approved by our Board of directors and published on our website. We work to maintain a low-risk classification with HMRC by applying strict and transparent governance and showing respect for tax rules.

Committed long-term investor

- Northern Powergrid is part of the Berkshire Hathaway Energy (BHE) group. Our strong and secure parent company contributes to our high credit rating, the strongest among electricity network operators.
- Our operating model follows BHE's approach – to reinvest in improving our network for our customers both now and in the future. Strong credit ratings allow us to achieve competitive rates on the financing that funds our £4bn investment programme for our customers.



Developing an increasingly diverse workforce

- As we deliver our plans for decarbonisation, we know that one of our biggest challenges is scaling and developing our workforce to deliver a more active and flexible network that will support the transition to net zero.
- As one of the largest employers in our region, we took on 332 new recruits during 2022-23 including 43 apprentices and trainees as part of our Workforce Renewal programme, which is designed to oversee the training and development of the next generation of skilled engineers in our industry. This took us to a total of 1331 job opportunities filled in the ED1 period, exceeding our original target ED1 target by 33%.
- In March 2023, we published our latest annual gender pay gap report which showed a gender pay gap in hourly pay of 24.5% compared with 24.3% in 2021-22. We remain committed to driving Diversity Equity and Inclusion (DEI) in our workforce.
- In 2022-23, we published our first DEI plan which contains a series of actions that will help Northern Powergrid appeal to a wider range of people and to grow the diversity of our workforce with a particular focus on attracting more women, those from minority ethnic backgrounds, and from areas in our region with low employment or income levels..
- We want to see more women in technical and professional roles, and we have been engaging to support the development of our long term Diversity, Equity and Inclusion plan.
- To help in the recruitment of more women into technical roles, we have used a gender decoder to ensure our job adverts have neutral language and avoid masculine words.
- We continue to leverage our partnership with Whole Energy Systems Research and Industry Network (Werin), a collaborative, interdisciplinary and cross-sector initiative that provides networking opportunities and professional support to women in the sector. We also work with schools, colleges, and universities in our region to promote Science, Technology, Engineering and Mathematical (STEM) subjects and have launched two new school age STEM engagement programmes in 2022-23.
- We have invested in new skills and unconscious bias training for our operational workforce, to support diversity and reflect the increased smart and digital technology on our network. All colleagues have now accessed this training.
- We have expanded our use of targeted recruitment campaigns to promote new job opportunities to under-represented groups as we seek to increase the diversity of our workforce.
- We have improved our engagement with the community to promote job opportunities in more diverse areas. We have completed deprivation profiling in all six of our regions to target engagement visits to areas where people sometimes struggle to find higher paying work.
- Furthermore, we have worked in partnership with EU Jobs to develop targeted adverts in publications that are popular in BAME communities and those that are aimed at Ex-service personnel.

What's next in this area at Northern Powergrid?

As we move into ED2, we will ensure efficient delivery of our planned investment programmes to deliver our output targets in line with cost allowances throughout the period.

We will also deliver the remainder of our £73m of additional Green Recovery investment to accelerate decarbonisation and support regional economic growth.

On the people agenda, we are stepping up our recruitment programmes to increase our delivery capacity in support of decarbonisation pathways including attracting new skills and building a more diverse workforce.

We are also looking to the longer term to increase interest in our industry within younger people with two dedicated school engagement programmes launched.

Our Net Zero school programme will increase awareness, interest and understanding of STEM skills and careers within the worlds of Net Zero and decarbonisation.

Whilst our Energy Heroes primary school resources has been designed to improve numeracy and science skills by exploring local data about energy and climate change.

Our people remain at the heart of our operations, and we will create more than 1,000 high-quality job opportunities in our region in the next five years, including increasing our focus on attracting a diverse range of talent to the energy sector.

We will upskill and multiskill our workforce to provide rewarding career paths and develop the new capabilities required for managing our future energy network.

We will also be developing a new training centre to help deliver high quality, local training on our Ofsted 'Outstanding' apprenticeship programme.

Increase the diversity of our workforce and develop a more inclusive workplace culture, supported by increasingly effective data insights.

Working near our assets

There are times when people need our help to work near or around our assets – we aim to do this in a safe and compliant manner, whilst offering the best levels of customer service.

Our objective

When giving help and advice for work taking place near our assets, we aim to meet all of our statutory duties and aim to deliver excellent customer service.

What this involves

Typically these situations include requests:

- i) for physical covers for overhead lines (shrouding);
- ii) to physically move our assets (either temporarily or permanently);
- iii) to share one of our wooden poles (e.g. for a telephone line);
- iv) for safety advice about working near our assets, including where our underground cables are; or
- v) to temporarily switch off the power while work is undertaken near our assets.

Those who need to work near our assets rate us across four major service lines: cable plans; disconnections, shrouding and other safety requests.

Performance continues to be monitored against internal SLAs to ensure we continue to deliver strong performance.

We also measure a number of 'Other Safety Requests' which incorporates work such as Service Alterations, Quality of Supply, Vegetation Management, Overhead Line and Substation Maintenance. This also includes diversions due to the low volume that were surveyed.

Our performance

Our improvement plans are in line with the commitments we made in our ED1 business plan – to make our services quicker, easier and more convenient for our customers.

In 2022-23, our satisfaction scores in all areas were in higher than the Ofgem targets and saw results marginally grow from last year on each of the service lines, though most remain broadly inline.

For cable plans, performance has remained high. We continue to reap the benefit from the introduction of self-serve capacity, which continues to get positive feedback from our customers.

For disconnections, we maintained similar levels of performance to last year.

For shrouding, we maintained similar levels of satisfaction with our embedded online, self-service processes.

For other safety requests, performance increased by 2 percentage points year-on-year, surpassing a 9 out of 10 average for the first time.

Getting better at what we do

We offer a variety of customer digital self-service options to make it easier for our customers to access the information they need.

We have also begun to roll-out evening and weekend appointments for some connections and general enquiries service lines to provide a more flexible and convenient service. We intend to roll this out across further service lines in ED2.

Looking ahead

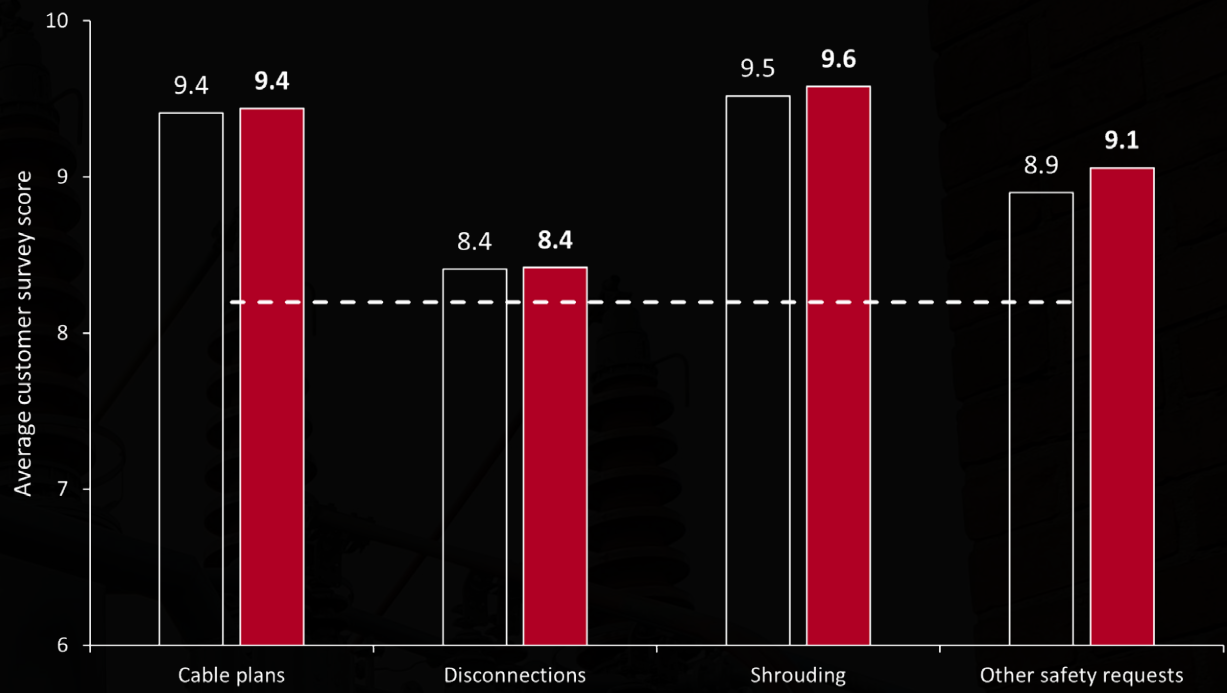
As we move into ED2 our focus will remain on embedding the processes and technologies we have implemented to ensure that these are delivering the service levels our customers need.

We will continue to further develop our unique 'at your service' initiative; widening the range of evening and weekend appointments we offer to our remaining general enquiry services.

We will review and develop our website to improve the journey when customers are applying for safety information online.

We are also reviewing our communication strategies for these enquiries, looking at improving the quality of communication and reviewing the frequency with which updates are sent.

Customer satisfaction in our general enquiry services



2022-23 Performance Snapshot - Northeast

Network	Network		Actual			
	Number of customers		1.6m			
	Total network length		42,486km			
Reliability & Availability	Reliability & Availability		Actual	Target ₂	Status	Trend ₃
	Customer Interruptions ₄	inc. exceptional events	47.6	-	-	▲
		exc. exceptional events	46.9	58.6	Achieved	▲
	Customer Minutes Lost ₄	inc. exceptional events	45.4	-	-	▲
		exc. exceptional events	44.0	50.9	Achieved	▲
	Incentive performance reward/(penalty) - Interruptions Incentive Scheme ₅	£m £/customer bill	4.8 £1.12	- -	- -	▼ -
Customer Satisfaction	Customer Satisfaction		Actual	Target	Status	Trend
	Broad Measure of Customer Satisfaction (rank out of six) ₆		8.85 (12th)	82.0%	Achieved	▲
	Incentive performance reward/(penalty) - BMCS ₇	£m	1.5	-	-	▲
		£/customer bill	£0.35	-	-	-
Connections	Connections		Actual	Target	Status	Trend
	Time to quote (days) ₈		8.4	4.8	Missed	▲
	Time to quote (days) ₈		44.9	39.3	Missed	▲
	Incentive performance reward/(penalty) – connections lead time	£m £/customer bill	0.0 £0.00	- -	- -	▲ -
		Incentive on Connections Engagement (ICE) penalty (if applicable)	£m £/customer bill	Nil Nil	- -	- -
	Social Obligations	Social Obligations		Actual	Target	Status
Individual Stakeholder Engagement and Consumer Vulnerability (SECV) score out of ten (rank out of six)		3.30 (6th)	-	-	▲	
Incentive reward		£m £/customer bill	0.0 £0.00	- -	- -	- -
	Innovation	Safety	Environment			
We spent £1.8m across 15 dedicated innovation projects (73% of our Network Innovation Allowance). In the ED1 period, our innovative solutions have now delivered benefits to customers in excess of £26m.		Our long-term safety performance is strong and places us in the leading pack among our peers. However in 2022-23 we missed our annual headline safety target measured by the Occupational Safety and Health Administration (OSHA) rate – 0.38 against a target of 0.22 - representing nine reportable incidents in a workforce of around 2,650.	We achieved our oil leakage and business carbon footprint targets for 2022/23 and we achieved our commitment in removing overhead lines from areas of natural beauty.			

Financials	Financials	Northeast
	Unrestricted domestic tariff charge	£93.76
	Total expenditure £m	126.9
	% of cost allowances (2022-23)	87.8%
	% of cost allowances (ED1 total)	101%
	% of allowed revenue	42%
	Dividends paid ₉	19.3
	Gearing ₁₀	47%
	Credit rating ₁₁	A3/A-
	Regulatory return on equity ₁₂	10.4%

- All financial figures in 2012-13 prices and refer to Northern Powergrid overall unless otherwise stated. The performance of each licensee is shown in the Annex to this report.
- Ofgem target (see sections in the main body of the report for performance against our own targets)
- ▲ getting better ▼ getting worse since 2021-22.
- Unplanned & unweighted figures. Indicative figures as at July 2023, figures still to be confirmed by Ofgem
- Excluding Guaranteed Standards payments
- Broad Measure of Customer Satisfaction (BMCS) rank indicative only based on monthly data. Final ranking to be confirmed by Ofgem.
- Does not include SECV reward
- LVSSA (single minor connections)
- Dividends paid figure relates to dividends from the licensee companies in the year.
- Gearing figures for Northeast relates to gearing of the licensee company.
- Credit ratings for Northeast relates to scores for three credit rating agencies (Moody's/Standard and Poor's/Fitch) for the licensee company.
- RORE forecast for the ED1 period based on notional gearing and including holding company debt.

2022-23 Performance Snapshot - Yorkshire

Network	Network		Actual			
	Number of customers		2.3m			
	Total network length		55,623km			
Reliability & Availability	Reliability & Availability		Actual	Target ₂	Status	Trend ₃
	Customer Interruptions ₄	inc. exceptional events	59.3	-	-	▼
		exc. exceptional events	59.3	60.9	Achieved	▼
	Customer Minutes Lost ₄	inc. exceptional events	52.1	-	-	▲
		exc. exceptional events	52.1	51.8	Missed	▼
	Incentive performance reward/(penalty) £m		0.2	-	-	▼
	- Interruptions Incentive Scheme ₅ £/customer bill		£0.03	-	-	-
Customer Satisfaction	Customer Satisfaction		Actual	Target	Status	Trend
	Broad Measure of Customer Satisfaction (rank out of six) ₆		8.81 (13th)	82.0%	Achieved	▲
	Incentive performance reward/(penalty) £m		1.9	-	-	▲
	- BMCS ₇ £/customer bill		£0.32	-	-	-
Connections	Connections		Actual	Target	Status	Trend
	Time to quote (days) ₈		6.9	4.8	Missed	▲
	Time to quote (days) ₈		35.7	39.3	Achieved	▲
	Incentive performance reward/(penalty) £m		0.1	-	-	▲
	- connections lead time £/customer bill		£0.02	-	-	-
	Incentive on Connections Engagement (ICE) penalty (if applicable) £m		Nil	-	-	-
		£/customer bill	-	-	-	-
Social Obligations	Social Obligations		Actual	Target	Status	Trend
	Individual Stakeholder Engagement and Consumer Vulnerability (SECV) score out of ten (rank out of six)		3.30 (6th)	-	-	▲
	Incentive reward £m		0.0	-	-	-
		£/customer bill	£0.00	-	-	-

Innovation	Safety	Environment
We spent £2.4m across 15 dedicated innovation projects (73% of our Network Innovation Allowance). In the ED1 period, our innovative solutions have now delivered benefits to customers in excess of £12m.	Our long-term safety performance is strong and places us in the leading pack among our peers. However in 2022-23 we missed our annual headline safety target measured by the Occupational Safety and Health Administration (OSHA) rate – 0.38 against a target of 0.22 - representing nine reportable incidents in a workforce of around 2,650.	We achieved our oil leakage and business carbon footprint targets for 2022/23 and we achieved our commitment in removing overhead lines from areas of natural beauty.

Financials	Financials	Yorkshire
	Unrestricted domestic tariff charge	£85.56
	Total expenditure £m	211.5
	% of cost allowances (2022-23)	106.3%
	% of cost allowances (ED1 total)	99%
	% of allowed revenue	54%
	Dividends paid ₉	25.6
	Gearing ₁₀	43%
	Credit rating ₁₁	A3/A/A-
	Regulatory return on equity ₁₂	10.0%

- All financial figures in 2012-13 prices and refer to Northern Powergrid overall unless otherwise stated. The performance of each licensee is shown in the Annex to this report.
- Ofgem target (see sections in the main body of the report for performance against our own targets)
- ▲ getting better ▼ getting worse since 2021-22.
- Unplanned & unweighted figures. Indicative figures as at July 2023, figures still to be confirmed by Ofgem
- Excluding Guaranteed Standards payments
- Broad Measure of Customer Satisfaction (BMCS) rank indicative only based on monthly data. Final ranking to be confirmed by Ofgem.
- Does not include SECV reward
- LVSSA (single minor connections)
- Dividends paid figure relates to dividends from the licensee companies in the year.
- Gearing figures for Yorkshire relates to gearing of the licensee company.
- Credit ratings for Yorkshire relates to scores for three credit rating agencies (Moody's/Standard and Poor's/Fitch) for the licensee company.
- RORE forecast for the ED1 period based on notional gearing and including holding company debt.

Glossary and definitions

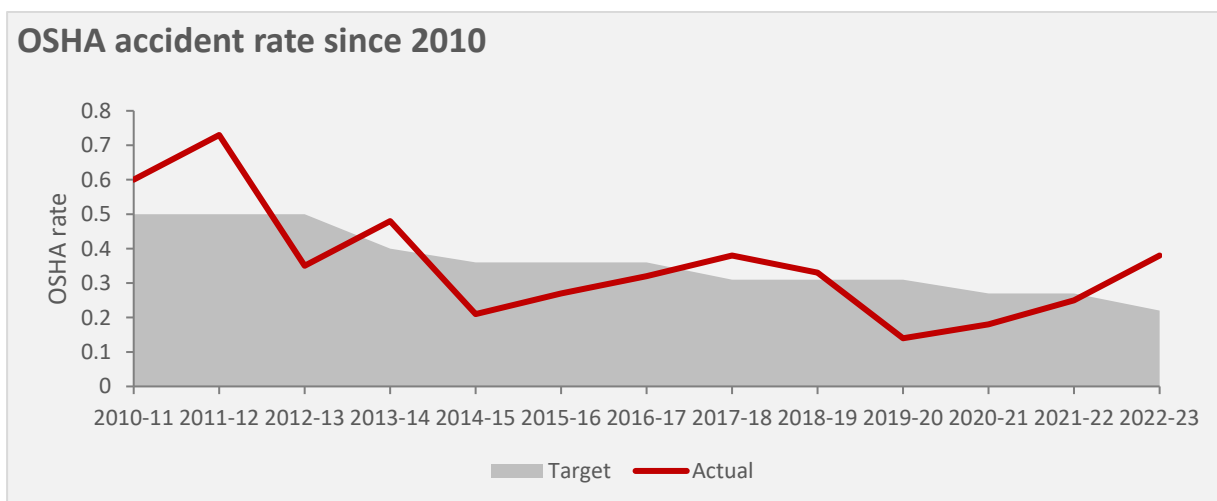
Number of customers	-	Number of customers electricity is distributed to in Northern Powergrid's licensee areas: Northeast and Yorkshire.
Total DNO network length	-	The total kilometres of overhead lines, underground lines and subsea cables used to distribute electricity to Northern Powergrid customers in its two licensee areas: Northeast and Yorkshire.
Customer interruptions	Including exceptional events	The number of customers whose supplies have been interrupted per 100 customers per year over all incidents where an interruption of supply lasts for three minutes or longer, excluding reinterruptions to the supply of customers previously interrupted during the same incident, including interruptions caused by exceptional events. An exceptional event is an event which is beyond the reasonable control of the licensee but does not include weather conditions which are reasonably expected to occur
	excluding exceptional events	As above, but excluding any interruptions caused by exceptional events.
Customer minutes lost	Including exceptional events	The duration of interruptions to supply (or the average customer minutes lost per customer per year) where an interruption of supply lasts for three minutes or longer. It includes any interruptions caused by exceptional events.
	excluding exceptional events	As above, but excluding any interruptions caused by exceptional events.
IIS – Incentive performance reward/ (penalty)	£	Electricity distribution companies are incentivised on the number and duration of network supply interruptions versus a target derived from benchmark industry performance. This figure represents the financial reward/(penalty) earned or measured on network interruptions in Ofgem's Interruption Incentive Scheme (IIS)
	£/domestic customer bill	How much the above incentive reward (or penalty) will add to (or take off) the bill for an average domestic consumer in 2021–22.
Broad Measure of Customer Satisfaction Score (BMCS)	-	BMCS score and rank on Ofgem's customer satisfaction measure. It is based on a customer satisfaction survey and is designed to drive improvements in the quality of the overall customer experience by capturing and measuring customers' experiences of contact with their electricity distribution company.
BMCS – Incentive performance reward/ (penalty)	£	Value of the Ofgem BMCS reward/(penalty), a financial incentive on customer satisfaction, excluding stakeholder engagement rewards.
	£/domestic customer bill	How much the above incentive reward (or penalty) will add to (or take off) the bill for an average domestic consumer in 2021–22.
Time-to-quote (days)	-	The average number of days from a connection application being received to a connection quote being issued.
Time-to connect (days)	-	The average number of days from acceptance of a connection quote by a connectee to the completion of the necessary electrical works, to the point it would be possible to energise (subject to installation of an appropriate meter).
Incentive performance reward/ (penalty) – connections lead time	£	Value of the time to connect financial incentive for single low-voltage minor connections (LVSSA) and two to four minor connections (LVSSB).
	£/domestic customer bill	How much the above incentive reward (or penalty) will add to (or take off) the bill for an average domestic consumer in 2021–22.
Incentive on Connections Engagement (ICE) penalty	£	Value of the Ofgem ICE penalty: a connections engagement financial incentive for major connections customers (metered demand connections, metered distributed generation and unmetered connections).
	£/domestic customer bill	How much the above incentive penalty will take off the bill for an average domestic consumer in 2021–22.

Stakeholder Engagement and Consumer Vulnerability (SECV)	-	Northern Powergrid's Stakeholder Engagement and Consumer Vulnerability (SECV) score and rank as part of Ofgem's customer satisfaction measure.
Incentive reward (SECV)	£	Value of the Ofgem SECV reward, a stakeholder engagement financial incentive.
	£/domestic customer bill	How much the above incentive reward will add to the bill for an average domestic consumer in 2021–22.
Unrestricted domestic tariff charge (for a typical domestic customer)	-	The distribution element of the bill for an average domestic consumer in 2019–20, excluding the cost of a special rebate given by some electricity distribution companies in 2014 and 2015 (in accordance with the government 2013 Autumn statement) to help reduce energy bills. The average domestic consumer is assumed to use 2,900kWh per annum. The calculation assumes 365 days in a year.
Total expenditure	£	This is Ofgem's regulatory total expenditure measure, which includes many of the costs incurred by DNO companies, but excludes costs over which companies have no control, and which also nets off proceeds from the sale of assets. This measure is used as the basis for calculating how much the company has spent on operating and investing in its distribution business, and companies are incentivised to minimise it while at the same time delivering all the required outputs
	% of cost allowances	How much the company has spent of its Totex allowances for the year. If the percentage is lower, a company has either been successful in reducing how much it costs to deliver its outputs, or has not delivered some of its outputs (which would lead to a reduction in its future allowed revenues).
	% of allowed revenue	How much of its allowed revenues a company used to fund its Totex expenditure, before covering other day-to-day costs
Dividends paid	-	Dividends paid in the year
Gearing	-	A ratio measuring the extent to which a company is financed through borrowing. Ofgem calculates gearing as the percentage of net debt relative to the Regulatory Asset Value (RAV).
Credit rating	-	An evaluation of a potential borrower's ability to repay debt. Credit ratings are calculated from financial records including and current assets and liabilities. There are three major credit rating agencies (Standard & Poor's, Fitch and Moody's) who use broadly similar credit rating scales, with D being the lowest rating (highest risk) and AAA being the highest rating (lowest risk). The companies regulated by Ofgem typically have a credit rating of BBB, BBB+, A- or A.
Actual Return On Regulatory Equity – RORE (vs Ofgem assumption of 6%)	-	The return on regulated equity (RORE) measures how much a company has earned on previous investments in its regulatory assets (RAV) that have been funded by shareholders in the regulatory settlement. This starts with the base return which Ofgem allowed, and is adjusted for the value earned via any incentive schemes to reflect performance, and how much the company's debt finance cost compared to Ofgem's assumption. Ofgem's calculation of this figure assumes a notional gearing of 65%. It is stated in real terms, i.e. before inflation is added.
OSHA rate	-	In the USA the Occupational Safety and Health Administration (OSHA) accident rate records reportable work-related accidents including major incidents leading to absence from work and also less severe injuries where employees may experience restricted work duties or have prescription drugs issued as treatment. The OSHA rate is presented as reportable cases per 200,000 man hours. See www.osha.gov
RIDDOR rate	-	A UK accident rate that measures the number of accidents that are reportable under the UK's Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR). These accidents are reportable to the HSE and include fatal, major injury and lost-time accidents resulting in over seven days absence from work. See http://www.hse.gov.uk/riddor

ANNEX A: SAFETY

Commitment	Status	Completion
1.1 Remain a leading safety performer, meeting all requirements and halving our accident rate by 2023	Missed (91% delivered)	-

- Our long-term safety performance remains solid with our position as one of the leading companies in the sector with a long-term OSHA rate of just 0.24¹. We have continued to meet all our safety requirements and we are proud of the reduction in our accident rates that we have achieved.
- Whilst we did not quite achieve the target of 0.22 required to deliver the commitment we had set ourselves to halve our accident rate, we are proud of the 45% reduction we did achieve. We also achieved a notable accomplishment having gone a period of 552 consecutive days without an OSHA lost time accident.
- Our RIDDOR accident rate performance also improved greatly over the period with an average of 0.14 across the whole of ED1 and 0.11 over the final four years. Again, this was just short of the 0.10 target we set ourselves to achieve a 50% improvement.
- We maintained our strong emphasis on reducing the risk from driving and delivered a reduction over the ED1 period on preventable vehicle accidents, most notably achieving a best-ever performance in 2022-23 with only 26 vehicle accidents whilst driving over 15 million miles. This significant accomplishment was achieved through the investment in ED1 on upgrading the vehicle telematics system in our fleet vehicles and our investment in training our drivers through targeted training programmes. We also retro-fitted reversing cameras to our fleet vehicles to provide our drivers with the latest vehicle technologies to avoid slow speed manoeuvring accidents.



Going beyond our plan

- We operated effectively through the COVID-19 pandemic, keeping our colleagues safe by maintaining a robust set of social distancing policies, enabling home working, and maintaining single occupancy in our fleet vehicles, as well as engaging effectively with our trade union colleagues. Our wellbeing programme aimed at supporting colleagues' mental health and wellbeing was maintained throughout the pandemic.

¹ Calculated over the 4 year period period 2019-23

Commitment	Status	Completion
1.2 Increase awareness in our communities of the dangers of electricity if not handled properly	Delivered	2022-23

- We continued our programme to raise awareness of the dangers of electricity with school children. Our programme reached over 57,000 children in the final year of ED1. Our programme reached around 372,000 school-aged children across the 8 year ED1 period.
- Our engagement with young people was driven by our diverse school safety awareness programme for primary and secondary schools, including our 'Crucial Crew' programme in partnership with the Police, Fire Brigade and Drug Awareness teams. We also partnered with the Scout Association to deliver the "Home Safety Badge" as well as offering educational talks on how to stay safe around our network.
- Safety advice to farmers, anglers, vehicle operators and others was available via our website.
- A key awareness priority is the risk that overhead power lines pose to farmers, road hauliers and contractors. We continued to engage with the regional executive of the National Farmers Union (NFU) to plan a combined approach to safety communications for the agricultural community. We've continued to use the 'Look up – it's live' material to raise awareness of the dangers of overhead lines which outlines what to do if a vehicle makes contact with our equipment. We have collaborated with ENA members to produce an educational DVD for the domestic sector to raise awareness of the dangers of underground cables and overhead lines. The collaboration via the ENA also includes raising awareness of the dangers from overhead lines and underground cables for those who undertake work near our assets.
- We have delivered electrical safety presentations at major agricultural training colleges during student induction days. Our engagement with the National Farmers Union (NFU), and particular the "Young Framers" group, has included talks and presentations on overhead power line safety.
- In 2022-23, we extended our 'Look up – it's live' campaign to tractor, plant and construction dealerships to target an increase in safety awareness to these groups. Our forward-looking programme will continue to target these key areas.
- Via social media and our website, we continued to provide timely safety messages to coincide with school holidays, busy agricultural periods such as harvesting times, and the start of the angling season.

Going beyond out plan

- During the Covid pandemic, we were not able to provide face-to-face lessons in schools like we usually would. However, we revamped our offering to provide a greater range of online interactive resources for children to access our safety messages.
- We worked with schools to understand how we can re-engage and adapt the programme. This included delivering a programme that provides the opportunity for in-person engagement and continued online engagement.
- Looking ahead, we will continue to monitor incidents involving overhead line contacts to review whether our awareness campaigns are having an impact and we will target our engagement to maximise our impact. We will be working through the NFU to raise awareness of our programme to supply warning notices to farming businesses so they can highlight the dangers of overhead lines on their land.

Commitment	Status	Completion
1.3 Keep safety as a central driver of investment decisions and appraisals	Delivered	2018-19

- Safety remains a central driver of our decision-making processes whether we are operating, extending, maintaining, repairing or replacing the network.
- In line with our commitment, we work to an asset investment policy that underpins the principles of developing safe, efficient, coordinated and economical electricity systems that sustainably serve the needs of our stakeholders.
- As an example, since the start of the ED1 period, we have provided quarterly returns to the Health and Safety Executive relating to our service cut-out change programme. Across the ED1 period, we replaced over 240,000 service cut-outs, removing 10,105 units that did not comply with Electrical Safety, Quality and Continuity Regulation (ESQCR) safety standards.

Commitment	Status	Completion
1.4 Promptly resolve any network safety issues arising from the smart meter roll-out	Delivered	2022-23

- The rollout of millions of smart meters to customers by energy suppliers in our region presents a safety risk if the installation is not done properly. To mitigate this risk, we only permit operatives to install smart meters on our network on behalf of energy suppliers if they have gone through a training and competency assessment.
- We have well established processes in place for responding to issues identified with meter installations and any problems identified to date have been investigated and resolved promptly where we are able to gain access to a customer's property. Our service level agreement (SLA) performance for defect resolution remained strong across the period for both Category A and Category B defects against a profile of receiving almost twice as many defects compared to forecast.
- In 2022-23 we have continued to react effectively to all defects received. Actual install volumes were on average four times the forecast which effectively meant we resolved 100% of the expected 2% under the DCUSA 195A standard. We did however continue to report to DCUSA our performance against all defects received and not the 2% threshold as outlined in the DCUSA.
- In 2013, the HSE brought in a requirement for DNOs to replace all known 'fused neutral' cut-outs. These cut-outs are usually located beneath the meter and modern equivalents only have the 'live' connection protected by a fuse and the neutral connection is solid. This is primarily to ensure the neutral connection into the property is continuous (in order to ensure that any neutral earth connection to the DNO network remains unbroken as far as reasonably practicable), providing protection to our customers in the event of a fault. In 2019-20, we ran a data project where we developed a 'heat map' that showed the location of previous interventions and highlighted areas with a high potential to discover cut-outs of this type.
- We participated in industry working groups throughout the period, including the DCUSA Interventions Working Group (IWG), the Meter Operators Code of Practice Agreement group (MOCOPA), where our representative sat as chair for two years, and the Network Industry ENA led Service Terminations Working Group (STIG). We have also provided representation in the BEIS Smart Meter Operations Group (SMOG).
- Looking ahead, we'll continue to repair network defects in a timely manner and work with meter operators to minimise the delays, and inconvenience, caused to customers when a smart meter cannot be installed.

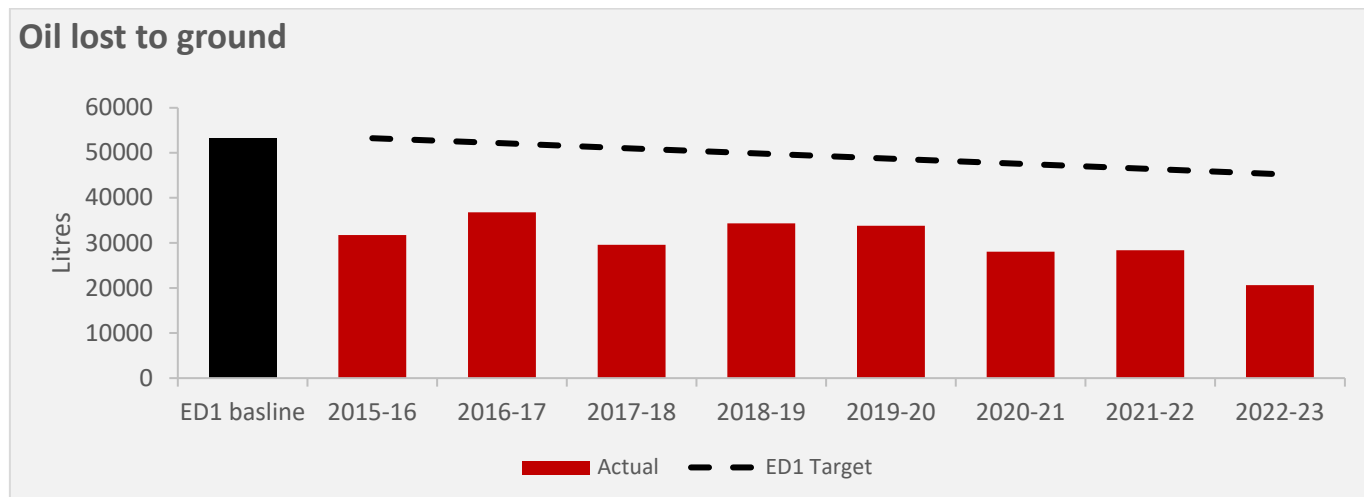
Commitment	Status	Status
1.5 Reduce the impact of metal theft, including improving substation security	Delivered	2022-23

- The level of metal theft from our network continues to be low compared to national levels, which shows modest increases in some areas. In 2023 to date we have experienced over 800 instances of metal theft across our network.
- We have engaged with the local and national police forces, preparing enhanced response plans, such as Operation Gunpowder, to improve the effectiveness of our joint incident response. We are active members of the National Infrastructure Crime Reduction Partnership (NIRCP) with whom we share sanitised crime data, receiving crime 'hot spot' information and intelligence updates based on cross-sector data in return. We have used this information to develop a proactive crime reduction strategy and will start intelligence driven proactive forensic making of assets in ED2.
- We continually review our approach and improve our ability to mitigate and respond to theft. We also have a team that focuses on reviewing and reinforcing substation sites that we consider vulnerable.
- In the ED1 period, we invested £5.9m upgrading Critical National Infrastructure (CNI) sites and have upgraded security at all our CNI sites. As part of our investment in this area, we've developed an Alarm Receiving Centre (ARC) which we commissioned in the summer of 2021. Through investment in upgrading substation intruder alarms and management through the ARC, we have improved the effectiveness of our response.
- During 2022-23 we have improved our security incident investigation process using duty ARC staff to coordinate initial response. The ARC operates as the focus of our operational security activity at both operational and non-operational sites processing alarms, CCTV and response activity.
- Looking ahead towards ED2, we will improve the perimeter security of 155 substations through the use of CCTV integrated with perimeter intruder detection technologies linked to our Alarm Receiving Centre. We will also continue to invest in the upgrading of our operational alarm estate.

ANNEX B: ENVIRONMENT

Commitment	Status	Completion
9.1 Reduce oil/fluid leakage to ground by 15% by 2023	Exceeded	2022-23

- Our 2022-23 oil and fluid loss of 20,618 litres was a best ever performance and a 27% decrease in fluid loss compared to the prior year. Overall, the 2022-23 outcome is a 61% reduction compared to our business plan baseline of 53,245 litres.
- Over ED1 we have targeted the replacement of our worst performing and highest risk fluid filled cables supplemented by the use of technology to improve the accuracy and speed of response on leaks. This has involved using technologies such as perfluorocarbon (PFT) leak detection, where, since the start of ED1, we have invested £3.4m to have PFT injected into 58 fluid-filled cable circuits.
- We continue our trials for the innovative self-healing cable additive solution aimed at improving network performance, generating cost efficiencies, and reducing the impact of cable leaks. The additive was successfully introduced into an out of commission cable, visual proof of the self-healing properties was observed at a joint position and onsite handling experience was gained. Phase 3 of the self-healing cable fluid (SHF) trial commenced in March 2023 to determine if slugging the cable with SHF, rather than full fluid exchange, works as effectively; slugging would involve injecting the SHF into the cable oil and let it dissipate through the length of the cable naturally, as opposed to fluid exchange where the SHF would be mixed with cable oil and force flushed through the cable length.



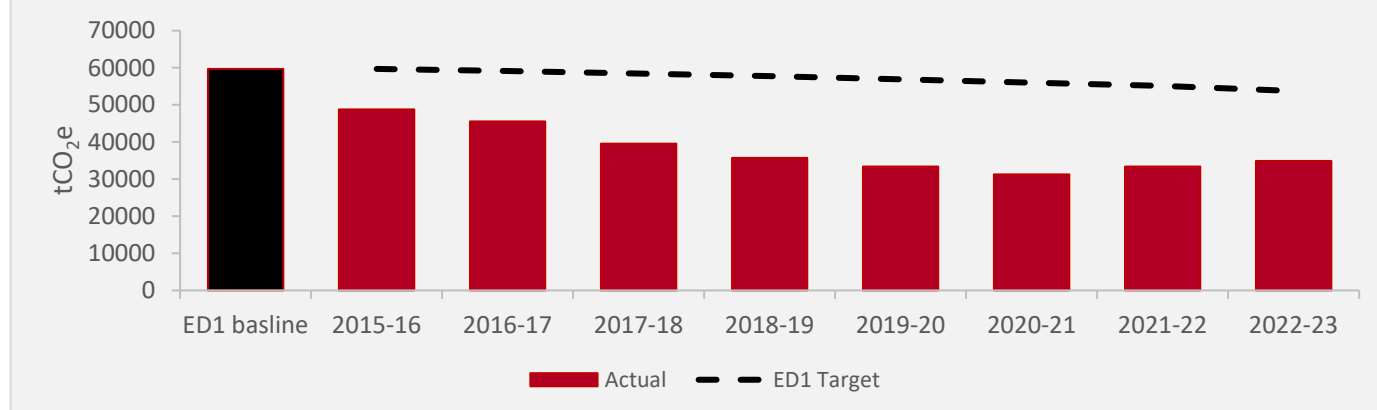
Going beyond our plan

- We achieved our previous stretch forecast of a 47% reduction in 2021-22 and were able to set a further stretch target of 50%. This too has been exceeded, with our 2022-23 performance representing a 61% reduction compared to our business plan baseline.

Commitment	Status	Completion
9.2 Reduce our business carbon footprint by 10% by 2023.	Exceeded	2022-23

- Our 2022-23 business carbon footprint emissions of 34,868 tonnes represented a 4.5% increase in emissions relative to 2021-22 due to a 628-tonne increase in SF₆ gas loss plus 180 tonnes from a fire suppressant leak.
- Overall for ED1, relative to our business plan baseline of 59,700 tonnes, we ended the period with a 42% reduction in overall

Business carbon footprint



emissions.

- 2022-23 emissions from our business travel increased by 19.8% compared to the prior year but remain significantly lower than previous years due to lessons learned during the pandemic (2022-23 business travel was 27.7% lower than the pre-pandemic 2019-20 figures). We continue to utilise agile working and digitalisation to ensure an enduring positive impact on our emissions.
- We continue to reduce operational fleet transport mileage assisted by our vehicle telematics systems, regional working, and the introduction of 52 ultra-low emission or zero emission vehicles (ULEV/ZEV) on our fleet. We will see further benefits as we continue to deploy ULEV/ZEVs onto our fleet and move towards more efficient fossil fuel engines as we replace the fleet.
- We are maintaining our focus on Sulphur Hexafluoride (SF₆) gas emission reduction, using thermal imaging technology to detect leaking switchgear. For 2022-23, our gas loss has increased by 27% as a result of four main leaking switchgear units which have contributed a combined total of 65kg to the overall loss of 129kg during 2022-23.
- We are working with our service providers to reduce their fuel consumption and energy use. Our Silent Power battery powered generator units are now used in business as usual during power cuts to enable us to meet both our Customer Service and environmental targets. We are planning to increase our use of zero emission generators and low emission fuels as we progress into ED2.

Going beyond our plan

- We far exceeded our original target to reduce our business carbon footprint by 10%, closing out the final year of ED1 with a 42% reduction.

Commitment	Status	Completion
9.3 Underground ~100km of overhead line in Areas of Outstanding Beauty (AONB)	Delivered	2022-23

- During ED1 we have undergrounded 102.6km of overhead line to improve visual amenity and protect our environment. This is above our original business plan commitment of 98km however, due to the significant impact of the COVID-19 pandemic on this programme of work, we have not achieved our stretch target of 114km by 2023.
- Within our region we have four National Parks and five Areas of Outstanding Natural Beauty (AONB). We are committed to taking proactive action to protect and enhance the environment in which we operate and actively work with our stakeholders to identify the most appropriate locations for work to allow our stakeholders to enjoy precious areas undisturbed by our assets on their horizon and removing potential dangers from the paths of wildlife.
- Our stakeholders have made it clear to us that this is a priority commitment area. Our strategy for project assessment and delivery is designed to meet the needs of representatives from the Designated Areas. We have a jointly agreed Assessment and Stakeholder Participation Policy. Our stakeholders draw up a priority list of potential projects taking into account the characteristics of each site and the visual and environmental impact of the overhead line. This leads to each site being given a Stakeholder Rating which, alongside our own engineering design, wayleaves, and value-for-money assessment, results in a project either progressing to authorisation or being deferred or cancelled. This methodology helps our stakeholders make informed decisions.
- During 2022-23 we have undergrounded 13.7km of overhead lines, 2.7km in Northeast and 11.1km in Yorkshire, incurring expenditure of £1.6m (£1.5m in Yorkshire and £0.1m in Northeast) (12/13 prices).
- Across ED1 we have spent £15.5m against our original allowance of £13.9m (12/13 prices)
- We have completed schemes driven by requests from a number of stakeholders including the Peak District National Park, Yorkshire Dales National Park, Nidderdale AONB and Lincolnshire Wolds AONB.
- A detailed view of our schemes, their progress and relative stakeholder scores can be found in the environmental report.

Commitment	Status	Completion
9.4 Replace 134km of fluid-filled cables and use Perfluorocarbon tracers (PFTs) to quickly replace leaks	Exceeded	2019-20

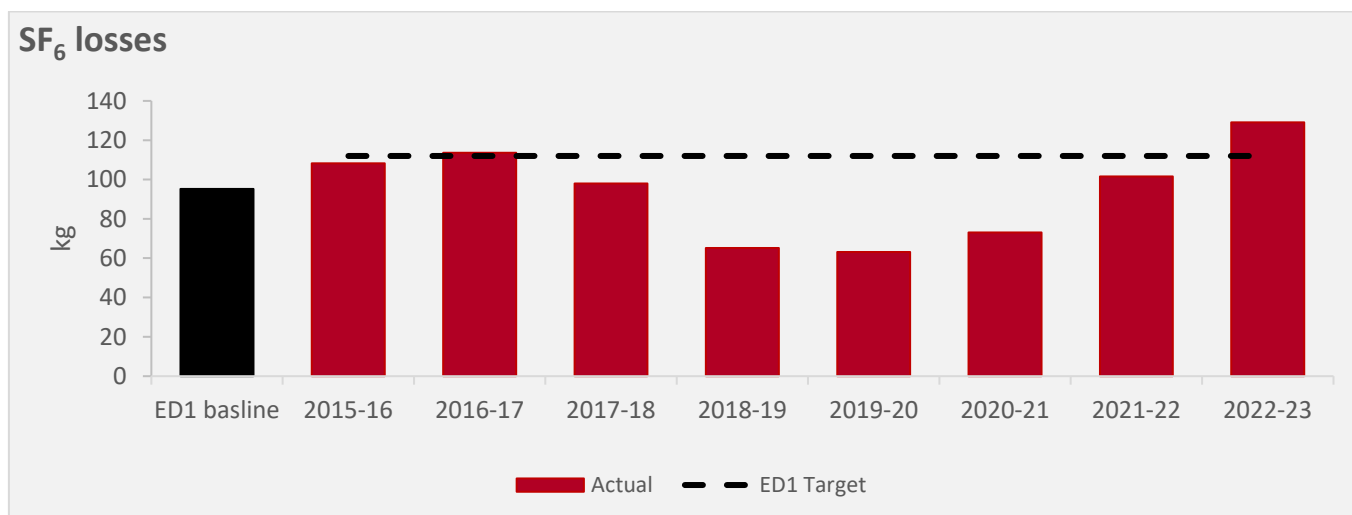
- In ED1 we replaced 224.4km of fluid filled cable which is 90.8km or 68% more than we originally planned in the period (our original target was 133.6km). This investment targeted the replacement of our worst performing and highest risk fluid filled cables.
- The combination of significantly increasing our fluid filled cable replacement, faster leak detection (using PFT tracer technology) and repair of leaks means we outperformed our fluid loss targets for the period and further reduced our environmental impact.
- During 2022-23, we closed out the second phase of our Bradford cable replacement project, which saw an investment of £30.9m to replace 45km of underground oil filled cable, delivering benefits to over 160,000 customers in West Yorkshire.

Going beyond our plan

- We hit our stretch ED1 business plan target to replace an additional 90.8km of fluid filled cable on top of the original 133.6km in the plan (224.4km in total).

Commitment	Status	Completion
9.5 Maintain SF₆ losses as the volume of gas in our switchgear assets increases.	Delivered	2022-23

- Our 2022-23 SF₆ losses of 129kg represented a 15% increase compared to our business plan target of 112kg and was a significant step back compared to our best ever performance of 63kg achieved in 2019-20.
- The sustained increase in gas loss is the result four main leaking switchgear units which have contributed a combined 65kg to the total loss of 129kg during 2022-23. One of the units has been repaired and one has been replaced entirely. Of the remaining two units, one was programmed for replacement starting in June 2023 and the other is being programmed for repair by the manufacturer.
- Although we have missed our target in the year, our long term performance has been stronger. Across all of ED1, we have averaged a loss of 94kg per year, a 16% reduction on our ED1 plan baseline.
- There is still work required to retain focus on leak detection and repair, so we are working with our regional representatives to identify remedial actions on the other poorly performing assets. Over 2022-23, we procured an additional thermal imaging camera and enhanced our operational response processes.
- Despite the 2022-23 increased levels, our investment programme to replace the poorer performing circuits and continuing to leverage technology means we are still forecasting a significant reduction in SF₆ loss during ED2.



Commitment	Status	Completion
9.6 Deliver faster and higher quality street works reinstatement when we dig up the street	Delivered	2022-23

- We achieved a 91% success rate in 2022-23 for our annual street works reinstatement quality. We exceeded our ED1 Business Plan target of 90% in every year of the period and aim to carry on that trend as we move into ED2.
- We continue to be involved in the development of Street Manager and have an active presence in industry working groups shaping the future outlook of the Streetworks industry, with the introduction of performance-based inspections and changes to the calculation of inspection units from April 2023.
- Moving into ED2, we'll maintain the standard of reinstatement by engaging with our team regularly, identifying trends to spot improvement opportunities through site inspections and targeted training for the wider business.

Commitment	Status	Completion
9.7 Make sure reduction of electrical losses is explicitly factored into investment decisions for a wider range of assets.	Delivered	2018-19

- We have changed our policies around how we design and build network assets to explicitly factor losses into our investment decisions. The selection of standard equipment sizes is informed by quantification of losses, for example the use of 300mm as opposed to 185mm low voltage cable.
- Over ED1, we have continued to increase our understanding of electrical losses across our network and how it is impacted by the connection of low-carbon technology via a variety of projects described in our losses strategy (<https://northernpowergrid.com/losses>). We've also trained more staff to understand the principles and we have shared our methodology with other DNOs.
- More detail on how we manage losses can be found in our environment and innovation report.

Commitment	Status	Completion
9.8 Continue to operate a full revenue protection service	Withdrawn	2015-16

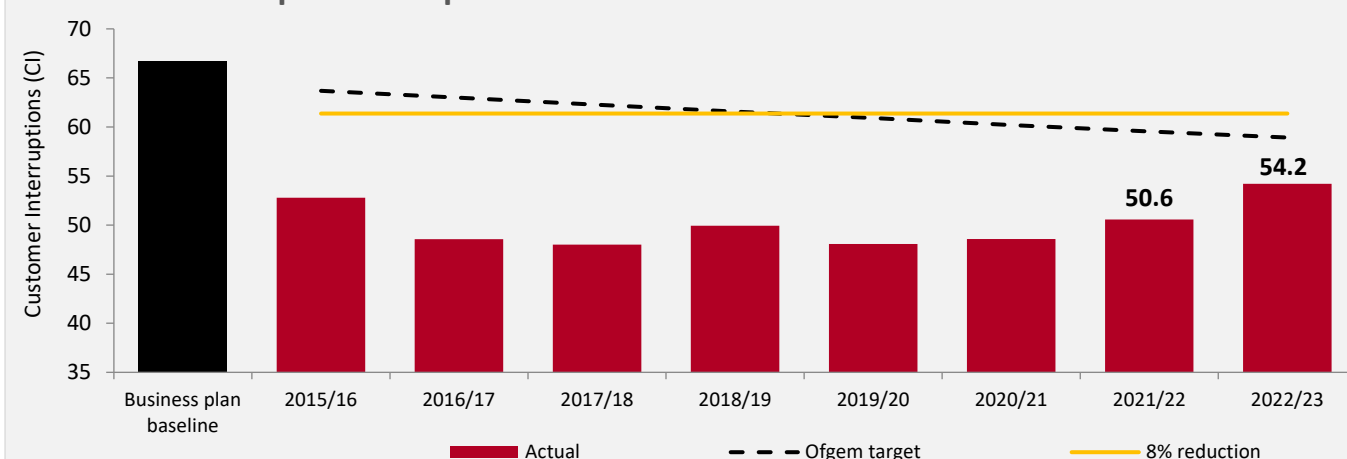
- In 2015 we informed our stakeholders that we intended to cease providing a revenue protection service for energy suppliers following the decision from our key service provider in our region to withdraw from this activity. This meant it was no longer practical for us to provide this optional service cost-effectively for suppliers and, as we received no objections, we stopped providing the service in April 2016.
- We are required under our licence to investigate and resolve relevant electricity theft (theft in conveyance). The above service provider also undertook this activity on our behalf until they withdrew their services and since they withdrew, we have trained front line staff who now carry out investigation of electricity theft cases.

ANNEX C: RELIABILITY & AVAILABILITY

Commitment	Status	Completion
2.1 Achieve 8% fewer unplanned power cuts by 2023	Exceeded	2022-23

- We have outperformed the targets we set in our ED1 business plan on unplanned customer interruptions (CI), having achieved a 24% reduction relative to our business plan baseline across the period.
- Throughout 2022-23, we continued our investment in high voltage automatic fault restoration technology that automatically reconfigures the network in response to faults. We upgraded 102 additional primary substations in the year, taking the total number enabled with the technology to 423 in the ED1 period, covering 58% of substations on our network.
- Fault prediction technology will play an increasingly important role in our plans going forward. This innovative new technology is assessing our network in real time, identifying signs of faults before they develop. During 2022-23 we commenced roll-out of the 6,000 monitoring devices as part of our Net Zero Ready Substation initiative through the Green Recovery programme. We also secured a further batch of fault management devices to supplement the existing fleet and put plans in place to create what will become our LV control room in ED2.

Customer interruptions - unplanned



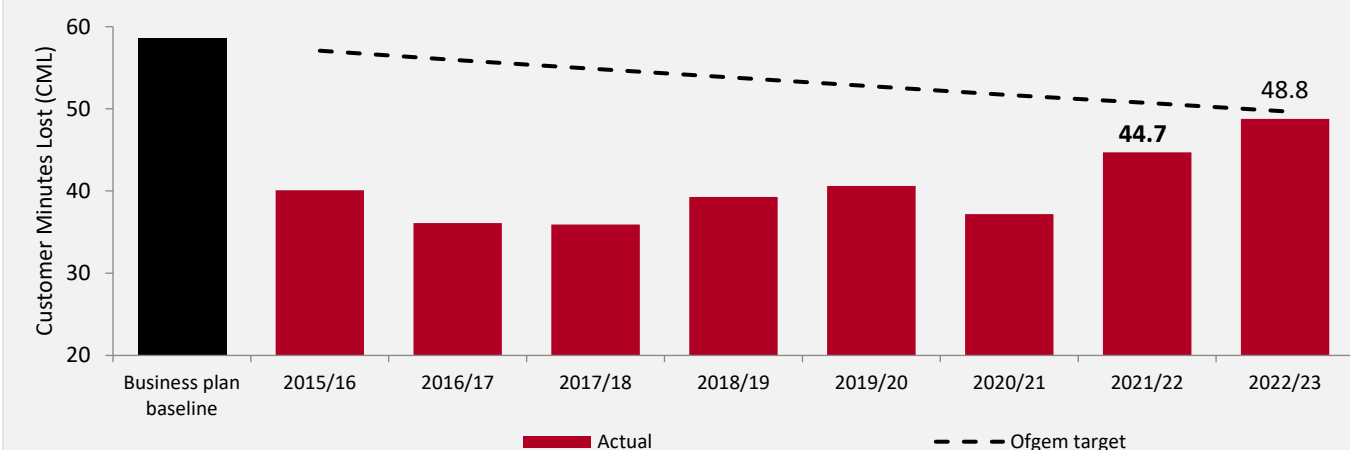
Going beyond our plan:

- We reduced our average Customer Interruptions by 24% across ED1, three times our original reduction target of 8%.

Commitment	Status	Completion
2.2 Reduce the average length of unplanned power cuts by 20% by 2023	Exceeded	2022-23

- We have outperformed the targets we set in our ED1 business plan having achieved a 26% reduction in unplanned customer minutes lost (CML) across ED1, relative to our business plan baseline.
- At high voltage, to improve restoration times, we have continued to roll out the use of remote control onto ground mounted switches and trialled the use of a new pole mounted switch for overhead line networks.
- We can't always restore a fault straight away, so we have continued to use mobile generators responsibly to restore power while we make repairs. We started works to further support our fleet of generators available to facilitate these types of restoration.
- Our investment in low voltage smart fuses and distance to fault technology is also reducing restoration times, allowing us to identify faults quicker for repair.
- We will continue to deliver our network performance investment programme and unplanned power cut restoration strategy, and we have set a target of a further 25% reduction in the average length of unplanned power cuts during the ED2 period.

Customer minutes lost - unplanned



Commitment	Status	Completion
2.3 Restore electricity within 12 hours – and if we don't, make enhanced and automatic payments to all customers (with extra for our vulnerable customers)	Delivered	2015-16

- We moved to the 12-hour power restoration guaranteed standard and implemented an automatic payment policy at the start of RIIO-ED1. In the event of a failure against the guaranteed standard we make enhanced payments above the mandated amount (of £75) paying £100 (an additional £25) to our customers or £200 (an additional £125) for vulnerable customers
- Prior to the 2021-22 regulatory year, we had been continuously reducing the number of power cuts lasting more than 12 hours by 62% in line with Ofgem's measure (in normal weather conditions and including any clock stops).
- However, in 2021-22, driven by the impact of Storms Arwen and Malik, performance deteriorated threefold compared to the previous year. The enduring recovery from these events continued to affect our operational response during these periods.
- In 2022-23 we began to recover this position with customers affected by a 12-hour fault reducing by 11% year-on-year.
- The deployment of additional generation, through our new mobile generator contract, alongside improved first response, contributed to an improved base position out-with periods impacted by storms.

Going beyond our plan:

- We will continue to deliver network and operational response improvements into the ED2 period to further drive down the number of outages that last longer than 12 hours. To this end, we have established a dedicated group to review opportunities to improve performance including making the best use of our fault locating equipment, with improved connectivity into our fault management system; along with implementation of a more robust process to identify the root cause of failures and identify learning points.
- During our RIIO-ED2 business plan process, we engaged extensively with stakeholders on the topic of long-duration power cuts. They noted that power cuts lasting 6 hours or more have a significant impact on customers due to the impact on two meals, heating, and food storage. We have introduced targets to reduce 6 hour interruptions through the use of generation and the introduction of shift work for parts of our workforce.

Commitment	Status	Completion
2.4 Planned power cuts to leave customers without power for less time, particularly during winter	Delivered	2019-20

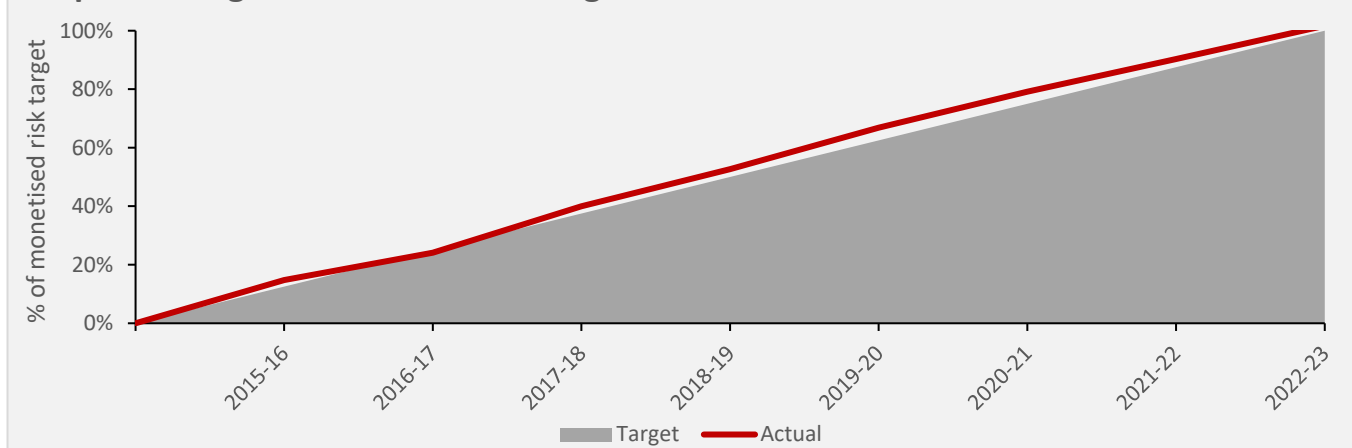
- At the start of ED1 period, we implemented a customer safeguarding policy which means planned power cuts are only scheduled for daylight hours, and, during the worst winter months, planned to last for no longer than 4.5 hours.
- In 2022-23, 98.9% of planned power cuts lasted no longer than eight hours, an improvement of 0.6 percentage points from the previous year. In the winter months we achieved our 4.5 hour target 88.6% of the time.
- We have also reduced the length of planned power cuts and in 2022-23, the average length was 195 minutes, an improvement of 3 minutes from the prior year and 58 minutes from the pre-ED1 baseline.

Going beyond our plan:

- During the pandemic we introduced a senior review of any planned outage that was planned to last more than 4 hours. This was focused on reducing the impact on customers who were required to isolate at home, with particular emphasis on vulnerable customers.
- We continued to use our enhanced communication of planned power cuts within our regional operating areas using our app based technology (CRM-Go) to provide live updates on progress.
- Customer satisfaction for our planned power cut service is high with our customers scoring us at 90.8% in 2022-23, an increase of 5.0 percentage points since the start of the period.
- Looking ahead, we will continue to reduce the length of planned power cuts as well as improving our services to our customers.

Commitment	Status	Completion
2.5 Maintain the underlying health of the asset base and report on it annually	Delivered	2022-23

- Our investment plan targets poor condition, ageing, and highly utilised assets in order to reduce the risk of failure. Every year we review the condition of the asset base, updating our understanding of risks and how asset condition or loading on assets has changed. This then informs our network investment plan as to how best to target investment to reduce or manage risk.
- We make an annual submission to our regulator on asset health and we have also developed a process that allows us to review major changes to asset health on a monthly basis.
- During 2022-23 we were able to deliver the milestone of 100% of our agreed Network Asset Secondary Deliverables (NASD) in both license areas. In our final year we realised a modest over-delivery, with our final reported position as 100.5% in the Northeast and 103.0% in Yorkshire. In year performance has been consistent with our plan driven by solid delivery performance, led by ongoing reprioritisation of our investment programmes in response to emerging risks on the network.
- In the Northeast, the delivery has been characterised by strong performance in EHV & 132kV overhead lines, primary plant and EHV & 132kV cable categories. This is offset by slower performance relative to our original proposals in the higher volume, lower cost work programmes relating to LV and HV poles and distribution plant.
- In Yorkshire, our plan was phased to deliver more outputs in the later years of the period, this included significant lengths of 132kV fluid filled cable replacement work in the Bradford area spanning multiple years, which completed in 2022-23.

Outputs vs Ofgem monetised risk targets**Going beyond our plan:**

- During the period we have evolved our strategies in several areas in order to respond to emerging risks on the network and to exploit synergies across our plan. This included introducing a retrofit HV primary switchgear programme, deferring the replacement of a number of primary transformer replacement schemes through targeted mid-life refurbishment driven by our latest condition and performance data, and bringing in an additional 26 replacement and 40 refurbishment schemes into our programmes to address our highest risk major substation assets.

Commitment	Status	Completion
2.6 Target network improvements for our worst-served customers	Delivered	2022-23

- We have delivered significant performance improvements in reliability and availability during the 2015-23 period using automated power restoration technology. This technology has a proven track record with just under one million customers having the duration of a power cut reduced to less than three minutes by our automated power restoration system (APRS), with many more benefiting from further restoration within 15 minutes from our control centre using remote control.
- Our ED1 investment of £37.4m has doubled the number of remote-control operation points on our high voltage network, significantly improving performance for a large number of customers through targeting areas of high customer density and lower than average network performance levels. This targeting of improvements on worst performing circuits has also led to improvements for our worst-served customers. This has been supplemented by the application of APRS to 1,756 circuits with prioritisation towards the worst performing parts of our network.
- At low voltage, traditionally fuses are used at substations to protect circuits and any fuse operation requires an operative to attend on site to change the fuse. We have deployed almost 2,000 low voltage (LV) auto-reclosing devices that switch to a backup fuse within three minutes and are able to estimate the fault location with every operation. These devices are deployed extensively on intermittent faults once customers experience a first supply interruption.
- Our experience with using this technology, as well as the improvement in the technology readiness level of newer low voltage fault management devices, means that we are in a strong position as we implement these technologies across a larger portion of our network, targeting the worst performing low voltage circuits. This technology works in tandem with our fault prediction monitoring allowing us to deploy more fault management devices prior to any customer interruption.
- This investment is separate from the Ofgem scheme for worst served customers. Ofgem defines a worst served customer as any customer that experiences a total of 12 or more higher voltage interruptions over a three-year period and a minimum of three higher voltage interruptions in each year during the period. Whilst we measure our performance against this regulatory definition, we made no investment that complied with the criteria of this scheme during ED1.

Commitment	Status	Completion
2.7 Ensure adequate network capacity for customers wanting to connect	Delivered	2022-23

- We routinely assess network capacity to ensure customers can connect to our network without incurring significant costs. Using monitoring and statistical analysis, we target interventions, via both flexible and traditional solutions, to develop the network in an efficient manner, creating new capacity where economic to do so in advance of new connections.
- We have a number of supporting initiatives to facilitate this with the overarching benefits driving an economically coordinated and developed network with locational signals for our customers to assess for connection opportunities.

Capacity availability

- We continue to routinely assess and report on Load Indices (LI) across our 605 sites using the Ofgem methodology. The overall level of existing capacity availability on our primary network is as follows:

			Licence	
			Northeast	Yorkshire
Number of sites			196 (196)	409 (409)
less than 95% utilised			98.5% (98.5%)	98.0% (98.3%)
Lower Bound	Upper bound	Ranking		
0%	<80%	LI1	180 (179)	377 (376)
80%	<95%	LI2	13 (14)	24 (26)
95%	<99%	LI3	2 (1)	2 (2)
99%	n/a	LI4	0 (1)	3 (2)
99%	n/a	LI5	1 (1)	3 (3)

* (Values for 2021-22 in brackets)

- We have continued to produce our Distribution Future Energy Scenarios that forecast load growth across our region out to 2050. This is supplemented via the use of heat maps, Long Term Development Statement and Network Development Plan to provide visibility of capacity on our network for connection customers.

Active Network Management (ANM)

- Our first replicable ANM scheme went live at Drifffield in March 2019, since then we have continued our ANM roll-out. Our scheme is an economical way of gaining access to headroom on the network and deferring the need for traditional reinforcement.
- We have made good progress with active network management (ANM) with four zones providing 433MW of contracted flexibility.
- We have accelerated our ANM offering to many EHV generation customers to offer a flexible solution to mitigate any local transmission reinforcement at our grid supply points.

Voltage reduction

- We have concluded our voltage reduction programme which aimed to free up 4.6GW of capacity on our network.
- In 2022-23, we freed up an additional 0.1GW of capacity, across 13 sites. We released a total of 4.6GW in ED1 across 511 sites.

AutoDesign

- Our innovative AutoDesign tool provides a view of LV network utilisation once a customer has provided the demand they are seeking to connect. We continue to explore further enhancements to provide LV heat maps (similar to that for EHV and HV) whereby customers will be able to see available capacity before deciding on the size of their connection.

Commitment	Status	Completion
2.8 Increase the resilience of the network to flooding	Exceeded	2019-20

- Our original ED1 target was to upgrade defences at 141 sites in the period in addition to 15 carried forward from the previous period (DPCR5).
- However, following our programme of stakeholder engagement, we recognised the importance that our stakeholders placed on this resilience work and front-end loaded this programme of works to ensure that we met our original target well in advance of the end of ED1.

Going beyond our plan:

- We further expanded our ED1 programme from 156 sites to 270 sites in line with the national flood resilience standard (ETR 138). Of the 270 sites, 210 were protected with additional flood defences and 60 have been assessed and only required minor remedial actions to meet the required standard.
- The expanded programme was delivered within our original cost allowances due to realising cost efficiencies in design and delivery.
- In 2022-23 we upgraded defences at a further four sites, taking our total flood defence upgrades to 210 sites in ED1 at a cost of £41.8m.

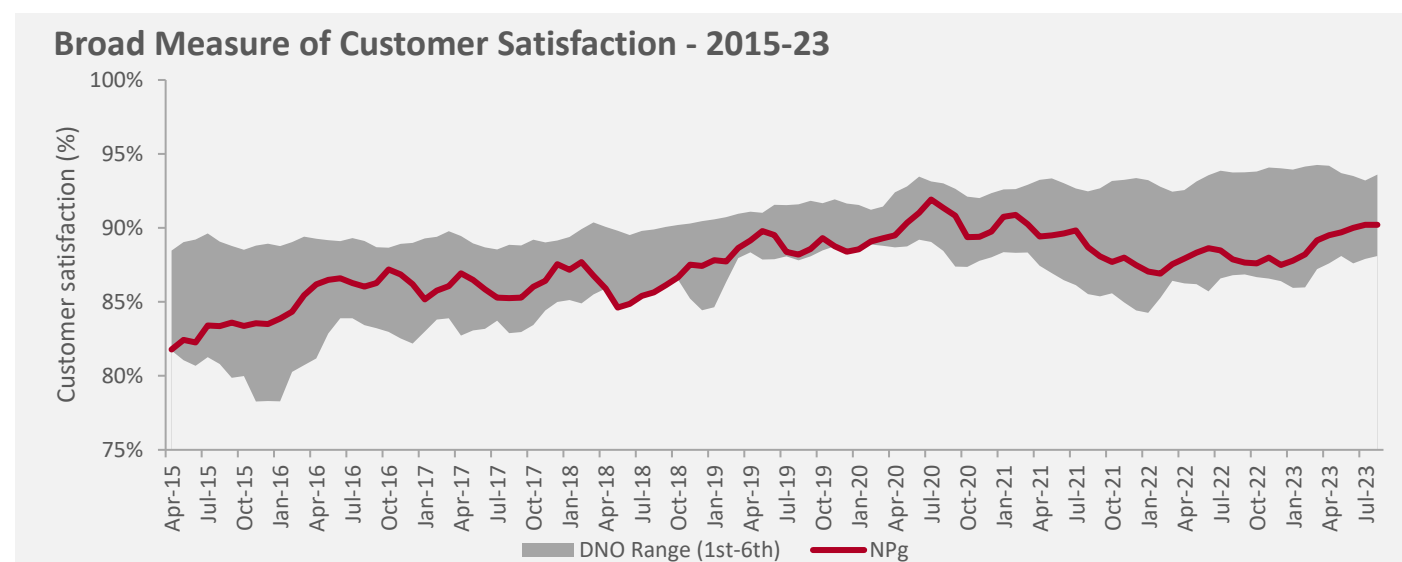
Commitment	Status	Completion
2.9 Use smart meter alarm information to improve network performance and the information we provide to customers	Delivered	2022-23

- It's well known that the UK Government's national smart meter programme has experienced significant delays due to technical issues. The North particularly has been impacted by a variety of ongoing, and enduring, problems, for example, frequency noise issues between meters plus radio mast and channel constraints. Furthermore, COVID-19 impacted the national roll-out programme with volumes of installations significantly down in 2020 and 2021.
- These delays have meant that we have not had smart meter data in the volumes we expected and cannot access the data in the way previously planned. However, we have adapted our systems and processes to make the most of the smart data available to us. We have been able to use what data we do have access to, to improve our understanding of faults once we are aware of them.
- We purchased and deployed the smart metering module in PowerOnFusion, integrating with the Smart Metering Gateway to enable users in our Dispatch team to issue and receive Read Supply Status (ping) service requests, indicating whether a property is still on supply.
- As such, once we know about a fault, our network control engineers have the ability to use pings to check whether meters connected to an asset, or within the predicted scope of an outage incident, are on supply. This not only allows us to better define the scope of a fault but can also be used to speed up the process of locating the source of a fault. In turn this can speed up fault resolution.
- A further benefit of this system is that it allows us to proactively contact customers who we believe are off supply based upon their smart meter data. This helps to speed up the process of providing them with further support. Similarly, if one of our customer service agents receives a power cut enquiry from a customer with a smart meter, they are able to use the ping to confirm the customer's interruption is genuine instantly.
- Our 'Support for Fault Reporting' Power BI dashboard further utilises smart meter data to firm up our historic reporting after faults have been restored. This improves the accuracy of our fault reporting and allows us to learn from some of our longer duration events. This process has significantly improved our appeals procedure when customers raise a complaint or challenge the start and end times for an outage.
- This has been particularly useful during post storm events, allowing us to provide a faster response for facilitating compensation payments and ensuring we were able to validate customer disputes over the duration of interruptions.
- We are also ensuring that any investment is not implemented significantly ahead of the ability of the national smart meter programme to provide the data, thereby striking a balance between efficient investment and delivery of the smart meter rollout benefits.

ANNEX D: CUSTOMER SERVICE COMMITMENTS

Commitment	Status	Completion
3.1 Make customer service more reliable, better communicated and backed by slicker processes. Be faster, at no extra cost	Delivered	2019-20

- Since the start of the ED1 period, we have achieved a 6.0 percentage point improvement in customer satisfaction. This has in part been driven by continued improvement in the consistency of our communication across all our contact channels (including web, automated telephony system, social media and voice) and various new initiatives designed to improve our services in line with customer feedback.
- In 2022-23 we have seen marginal improvements in our BMCS scores, however, many of these initiatives were implemented at the latter end of this period and we are anticipating greater improvements in the first year of ED2. This has been borne out so far, with scores in Q2 of 2023 increasing by a further 1.7 percentage points.
- To support more consistent communication, we developed our Quality Framework ensuring it meets the needs of our customers. This framework ensures we deliver high-quality customer conversations and has been enhanced during 2022-23 to adapt to our increasing number of contact channels and enhanced focus on priority service membership services, ensuring high quality communications at every point.



Going beyond our plan

- In 2019-20, we launched a customer rescue service whereby we proactively contact customers via text after an interaction with us and confirm satisfaction with our service. If customers are not satisfied (score us 8 or below) we contact them to put things right and demonstrate the importance we place in delivering first class customer service.
- Other key improvements implemented in the period so far include:
 - expansion of our live web chat services for our customers.
 - development and upgrades of the Customer Relationship Management (CRM) system ensuring our team have all the information they need in one central portal and customers can self-serve across a range of our services.
 - Centralisation and consolidation of all our customer data into one central repository to ensure that we have one accurate and up to date record of a customers' contact details.
 - New telephony platform implemented which we have evolved to build upon our already strong service offering to provide enhanced services for our customers, flexibility in messaging, enhanced accessibility to our services and greater opportunity to expand into other contact channels, requested by our customers.
 - Launched a call back assist facility in our telephony platform so customers do not have to wait during busier time, hold their space in the queue and receive a call back when an advisor becomes available.
 - Invested in a "preferred agent" system which directs customers to the advisor they initially spoke to if they call back within a specified time frame – should that agent be available within a specified wait time.

- Implemented the facility to send text links to our website when customer contact us, encouraging greater use of self-service to gain access to helpful information.
 - Introduced flexible messaging on our IVR which allows us to target specific postcodes with detailed information for those customers.
 - Implemented a series of improvements such as our rapid logger functionality and enhanced training to respond at scale during major incidents.
- In response to what we learned during the 2021-22 Storm period, we invested in technology and completed the scaling of our Contact Centre support by training an additional 470 colleagues across the business on our telephone platform and Customer Service quality standards to provide an even greater response when we have peaks in activity – always focussed on supporting our customers.

Commitment	Status	Completion
3.2 Use web-based technology to upgrade our process for general enquires and minor engineering works	Delivered	2015-16

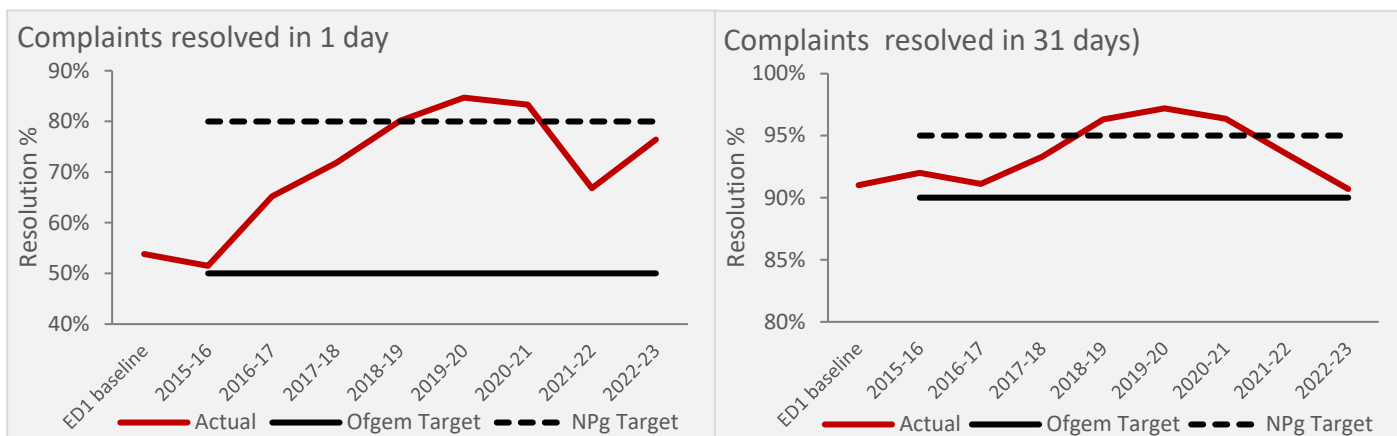
- Web-based technology has made it simpler and quicker for our customers to access our services.
- Our customer satisfaction levels have continued to track strongly across our General Enquiries services, finishing 2022-23 on 94.0%.
- We have invested in our systems to provide online self-service functionality for 33 general enquiries services. This includes functionality to enable booking of appointments online, paying for services directly on our website, accessing safety information, and reporting problems either with equipment at customer properties or on our network, such as vandalism or trees near overhead lines.
- In 2020-21 we extended the reach of our CRM system to provide dynamic, on the day updates for disconnections customers. This was then extended to all General Enquiries services in 2022-23.

Going beyond our plan

- In 2022-23 we successfully launched our Connections Solution which provides customers the ability to self-serve through our website and CRM.
- In response to stakeholder feedback, we have also expanded our online booking functionality to include evening and weekend appointments for our General Enquiries and Service Alterations services, so customers can book appointments when it is convenient for them.

Commitment	Status	Completion
3.3 Continue to improve the quality and speed of our complaint resolution	Delivered	2022-23

- The speed that we deal with customer complaints has improved year-on-year since the start of the period up until the 2021-22 regulatory year which was heavily impacted by the storm season, in particular Storm Arwen. However, we improved from this position again in 2022-23, increasing our day+1 complaint resolution by 9.5%.
- Overall, we improved the speed in which we answer complaints throughout RIIO ED1 by over 24%
- As a result of our on-going activity to improve our overall customer experience and get things right first time we have seen a 22% reduction in the volume of complaints since the beginning of RIIO-ED1.
- We have had no repeat complaints and no adverse ombudsman decisions during the RIIO-ED1 price control period.



Going beyond our plan

- Where customers experience multiple interruptions, this can lead to complaints. We have continued to pro-actively support and enhance our communication approach to reduce the number of complaints and ensure our customers understand the latest position and actions we are taking to resolve any poor service they are experiencing.
- We are further enhancing local accountability for customer service through the introduction of regional customer service support teams. Our front-line colleagues are empowered to put things right for our customers and are actively encouraged to work with our operational teams to resolve customer complaints quickly. We have aligned our Customer Care team with our regional structure to ensure a timely resolution for our customers.
- In advance of our RIIO-ED2 commitment we trialled our approach to provide on-site support for customers during long duration power cuts in 2022-23. The teams are encouraged to personally resolve dissatisfaction on site to prevent the escalation to a complaint. As a result, during the trial we have seen an increase in expressions of dissatisfaction being resolved on-site by our new responder team.

Commitment	Status	Completion
3.4 Provide better information to customers experiencing power cuts through voice or digital communication channels.	Delivered	2021-22

- Since the start of the ED1 period, we've expanded our digital communication channels to include live web chat, building on our existing suite of digital channels that includes email, text and social media (Facebook, Twitter and Instagram).
- We have invested in a new telephony platform to provide an enhanced service, ensuring we provide clear and simple navigation to incident updates by postcode area. This is designed to ensure our customers are given the most up-to-date and relevant information for their query as quickly as possible.
- We proactively text customers to inform them about disruption to their electricity supply and provide updates on restoration works, including estimated times of restoration.
- We maintain a live interactive power cut map that gives updates on where the power is off, whether it's planned or unplanned, and also provides information for customers about when we aim to have the power back on. In 2022-23 we further enhanced our online power cut map to ensure our customers have a simplified user experience.
- During 2020 we implemented improved communications for planned power cuts using our CRM system. Customers are now provided with better information about planned power cuts before they happen, including when they are happening and when they are finishing, with our field teams using a mobile app to provide real time updates.
- In 2021-22, we extended this service to unplanned power cuts, using on-site information provided by our field teams to provide customers with real time text updates alongside using our CRM platform for all customer communications.

Going beyond our plan

- In the final year of ED1 we have continued the expansion of our digital communication channels to further enhance the information customers receive during a power cut.
- We now fully utilise our social media suite, providing information to customers for all unplanned outages via this medium.
- Our major incident approach has matured, with clear communications in advance, during and after a power cut across all of our communication channels so customers are prepared and informed.
- We implemented new, flexible messaging on our IVR platform providing bespoke, specific and relevant information to customers by postcode area.
- We have made significant progress with our machine learned ETR process which went live in 2023, providing customer a more accurate estimation of their restoration time.

Commitment	Status	Completion
3.5 Use technology to enable our contact centre to move from being largely reactive to mostly proactive	Delivered	2019-20

- Our ED1 business plan envisaged moving to a world where 90% of our customer contacts would be outbound with only 10% inbound and we have continued to deploy technology and self-service solutions to provide customers with the information they require before they need to contact us. In 2022-23 we made over 30 million outbound communications.
- Through engagement with our stakeholders, we have found that a lot of customers still prefer to contact us themselves. This means that while our aim to be proactive remains unchanged, we have not seen the 90% to 10% ratio we envisaged in our ED1 plan as we continue to respond to the ways our customers want to get in touch with us.
- This engagement has pointed towards specific groups of customers that do prefer proactive contact. We find that vulnerable customers are particularly likely to want to get in touch with us, so we have worked hard to improve their experience. We provide a dedicated telephone number and team for our Priority Service customers to call negating the need for them to use our IVR or wait for an agent.
- To further support vulnerable, we attempt to contact every one of our Priority 1, Priority 2 and Priority 3 PSM lists in order to establish any welfare needs.
- We have also implemented an identifier in our IVR system whereby if a priority services customer calls the standard customer services number, we will identify them as a priority services customer and route them straight to an advisor.
- We have spent time developing more proactive ways to engage with our customers. We have introduced an automated outbound dialler that allows us to contact all of our customers in a much quicker timeframe with key updates and an overview of support available. This is especially valuable for our vulnerable customers and those with landlines only.
- We have a dedicated team of people who look after our social media and are on hand to deliver pro-active updates during major incidents or reactive answers to customer queries. We can also utilise this channel to sign-post customers to the most appropriate mechanism for the latest incident updates or to outline what support we have available and how customers can utilise that support.
- During Major Incidents we recognise the value in being pro-active, enhancing our approach to pro-actively communicate across all channels in advance of a likely incident to publicise support available and prepare our customers, this helps to build trust in our service.

Going beyond our plan

- We created a dedicated priority services team who provide proactive outbound text messaging and calls to priority service customers when they are impacted by a power cut. In 2022-23 we ramped up the size of this team in preparation of our more stretching proactive contact plans for ED2 and implemented an outbound dialler allowing us to proactively contact priority service customers with prompt, useful information in the event of a power cut, building upon our existing capacity enabling us to automatically communicate with landlines.
- Early in the ED1 period we completed a major piece of work to centralise and consolidate all of our customer data into one central repository. This was a key step for us in making sure we have one accurate and up to date record of our customer contact details to enable proactive communications (where appropriate). We hold mobile numbers for 65% of our customers and email addresses for 67% enabling us to proactively contact customers (where appropriate).
- Our IVR now has the facility to tailor messages by postcode and the ability to send over links to our website which directs customers to exactly where they need to be for the latest information. Additionally, we have invested in our Power Cut map which provides a better user experience.
- We are continuing to look at how we can enhance the service for those most vulnerable with 2022-23 focussed on developing and implemented our on-site support service when power cuts are expected to exceed six hours, which we have successfully trialled ready for implementation in 2023.

Commitment	Status	Completion
3.6 Make it easier for our customers to keep in touch - via internet, mobile, meetings, phone, email, social media, or text	Delivered	2019-20

- We know that people keep in touch with each other in many different ways and our aim is to make it as easy as we can for our customers to contact us in whatever way they prefer – channel of choice.
- In addition to our 24-hour telephone lines, we operate 24/7 social media channels, email, and mobile phone texting services in addition to our live web chat services until 8pm. The launch of the national ('105') power cut number in 2016-17 made it even easier and quicker to get in touch with us – over 65% of inbound calls now come via that route.
- We offer a variety of customer digital self-service options to make it easier for our customers to access the information they need including our online power cut map, on-line power cut logger, knowledgebase articles and dynamic FAQs on our website.
- In 2020-21, we extended our live web chat offering into connections, enabling more choice in the ways our customers can communicate with us.
- We have grown our Social Media presence utilising Facebook to inform customers where they may be impacted by a power cut, advertise welfare support and using the facility for customers to comment with questions or message us directly.
- We continue to develop our Interactive Voice Response (IVR) system. In 2022-23 we implemented new, flexible messaging on our IVR platform, providing bespoke, specific and relevant information to customers by postcode area.

Going beyond our plan

- In 2023 we launched a trial for WhatsApp messaging, reply text message and video chat, testing additional new channels for customers to contact us in the event of a power cut. We intend to move these into full launch in the first year of ED2.
- We also expanded beyond our contact channels to support communication and delivery of services for our customers with the trial of What3Words across a range of our services to pinpoint exact location of work required on our network, providing details of welfare support and guiding our operational teams to deliver more efficiently for our customers.

ANNEX E: SOCIAL OBLIGATIONS

Commitment	Status	Completion
5.1 - Route calls from Priority Service Customers directly to contact centre advisors, bypassing automated messaging	Delivered	2015-16

- Since the first year of ED1 all calls we receive from customers who have Priority Services Membership (PSM) bypass our automated messaging service and go directly through to a member of our Contact Centre team so that we can respond to their specific needs as quickly as possible.
- In 2022-23 we further enhanced this process by launching a “preferred agent” system which directs customers to the advisor they initially spoke to if they call back within a specified time frame – should that agent be available within a specified wait time. This means that if a PSM customer calls in a second time, they will be immediately directed to the same advisor they spoke to previously, wherever possible where there is an established relationship.
- Making it as easy as possible to communicate with us is essential. In 2017-18 we introduced a comprehensive suite of tools to support our vulnerable customers with specific communications needs including services such as Browse Aloud text-to-speech and ‘language line’ translation.
- We measure vulnerable customer satisfaction and gather feedback on our service through an independent survey which has been running since 2013. In January 2021 we completed the 11th phase of quantitative tracking research through 1,200 vulnerable customer telephone interviews. From this we know that one of the most important things we can do during a power cut is to keep our vulnerable customers proactively informed.
- As we engage with our vulnerable customers on current and emerging needs for the ED2 period, we remain committed to making communication with us during a power cut as accessible and reassuring as possible, with an emphasis on being proactive and personalised.

Going beyond our plan

- In 2022-23 we launched a “preferred agent” system which directs customers, including PSM customers, to advisor they initially spoke to if they call back within a specified time.
- In 2022-23 we proactively contacted over 75,000 PSM customers when they suffered a power interruption to check their needs and offer support. Since 2018 we have continually ramped up our proactive contact efforts, contacting over 280,000 PSM customers during interruptions and we have plans to increase this further in ED2.
- We also proactively contact our PSM customers prior to a major adverse weather event to establish if any support is required, and we maintain regular contact throughout the event, ensuring that any support needed is provided. We provide our dedicated priority services telephone number should they need to contact us throughout the weather event. This is in addition to our annual Winter Preparedness email campaign which we send to PSM customers every Autumn.

Commitment	Status	Completion
5.2 - Build partnerships with organisations to help us deliver our social programme	Delivered	2022-23

- Trusted partners are key to delivering services that have a positive impact on our vulnerable customers and communities. Our “Stronger Together” partnership strategy guides our approach as we continue to expand our partnerships with charities, community groups and other third-party organisations to deliver more support for our vulnerable customers.
- Our Partnering Communities Fund, established in 2017-18, was merged with Northern Gas Networks’ Community Promises Fund to create the Community Partnering Fund continues to offer £100,000 to community groups over a 12-month period with two rounds of applications per year. The fund makes grants for projects that tackle fuel poverty, promote energy efficiency, educate communities about the dangers of carbon monoxide and electrical safety, encourage interest in STEM (Science, Technology, Engineering and Maths) subjects, or promote our Priority Services Membership (PSM).
- This year we funded a further eight projects through this fund, with the projects focussed primarily on helping customers hardest hit by the ongoing cost of living crisis. Following the withdrawal of funding from Northern Gas Networks, we took the decision to double our own funding to ensure we continued to support the grassroots organisations working with the most vulnerable communities across our region.
- Since we began our partnership with Citizens Advice Newcastle back in 2014, we have scaled up the services we offer to our customers experiencing fuel poverty and affordability issues. Our ‘Powergrid Cares’ programme simplifies access to debt advice and wider provision through two direct points of contact with Citizens Advice Leeds and Newcastle and also through our partner Green Doctor. A dedicated number means our colleagues and partners can fast track customers who need extra support. The service responds to the personal needs identified by our customers and helps them receive relevant support.
- In 2022-23 we expanded our Citizens Advice partnerships from Newcastle and Leeds to cover the remaining parts of the region, including Sheffield, Humber and Northumberland, to target our support to those experiencing fuel poverty. With the current energy crisis continuing to affect a significant proportion of our customers, we will be working with Citizens Advice to significantly ramp up our fuel poverty support in ED2.
- In 2020-21 we partnered with the Money Adviser Network to support any customers who may have money worries, recognising the need for multiple entry points and the extension of fuel poor services which can be accessed before crisis points. Our customers can access free independent and impartial money and debt advice over the phone or online. Customers can also access the Money Navigator Tool that helps customers find guidance if they have been impacted by the COVID-19 pandemic.
- We also supported our partners during the pandemic to deliver their advice to the most vulnerable through digital and telephone methods until face-to-face interventions resumed. This enabled more people to access the services and has continued as part of a hybrid delivery model.
- We have partnered with Barnardo’s as part of a pilot to support families with children under five to provide energy efficiency advice, measures and information as well as providing them with winter warmer packs and access to fuel debt advice and support where needed. This is targeted to reach 250 families most in need by the end of ED1 with the option to replicate this across the region in the future.

Going beyond our plan

- We have aligned our engagement and social programmes with our asset investment programmes to meet specific local needs. We profile the investment area to understand its vulnerability profile and set aside a budget based on the scale and impact of our works. Then, through an intensive period of community outreach and in partnership with local stakeholders, we design an engagement and social programme in a way to minimise the level of disruption for local people and maximise a project’s lasting social impact.

Commitment	Status	Completion
5.3 - Promote and raise awareness of our Priority Services Register to and with other partner organisations	Delivered	2022-23

- The partnerships we have established and grown continue to help us to identify the most vulnerable communities in our region and tailor our PSM campaigns accordingly. We currently have 350+ local referral partners identifying individual needs and referring the people they support onto PSM and other wider support services we offer including Parish Councils, NHS Trusts, local authorities, charities, community organisations, and other 3rd sector partners.
- Following research into barriers and challenges of engaging with the PSR, we re-launched our Priority Services Register as a membership club. From the engagement we have carried out with stakeholders, some customers did not want to be added to a register as it has negative associations. Repositioning our PSM as a membership club means it is one less thing for someone who is vulnerable to worry about as they do not need to identify as vulnerable to engage.
- We closed 2022-23 with 970,942 Priority Services Members. In the final year of ED1, we saw a record number of direct Priority Service Member sign-ups, with sign-ups through our targeted recruitment and partnership approach increasing 156% year-on-year.
- We also continue to look for innovative ways to reach our vulnerable customers. This year, we worked with BluMilk to run trials using new PSM recruitment media including iVans and targeted online adverts. The campaign, which ran in Q4 of 2022, resulted in a 170% increase in direct sign ups compared to the same period in the previous year.
- Two targeted email campaigns were completed to reach those most in need but not currently on our Priority Services Membership by using data from Experian. These campaigns focused on contacting over 218k fuel poverty households and 74k households in rural locations to promote the PSM and deliver energy saving advice and tips to those households.

Going beyond our plan

- We have also purchased additional data which allowed us to analyse, at neighbourhood level, energy efficiency of homes alongside fuel poverty data. This information has informed the targeting of our Energy Saving campaign, trialling a new animation which offers short, simple tips and advice to help customers save money on their energy bills as well as promoting the PSM. It also aimed to support local people who may be trying to save money on their bills whilst at home more or who may be struggling with their annual energy costs. We targeted the nine geographic locations most in need, based on our data, using display ads on Google and video ads on YouTube.

Commitment	Status	Completion
5.4 - Enhance our training for front-line staff providing additional support for Priority Service Customers	Delivered	2018-19

- Understanding and responding to the needs of our customers, particularly those who may be more vulnerable, is everyone's responsibility in our company.
- In 2017-18 we designed bespoke face-to-face and online vulnerability training programmes for all Northern Powergrid employees. The training was developed in collaboration with experts from Money Advice Trust, who are regarded as best practice leaders in vulnerability within the financial services sector, and National Training Academy, experts in online training. We have been able to demonstrate the impact the training has had on our employees' knowledge and confidence in supporting customers in vulnerable situations.
- In 2018-19, we achieved our target to train all employees in the business. For new starters, we've introduced a 'best welcome' induction process that includes the training for all new employees. This process has remained fully embedded throughout the rest of ED1, with vulnerability training mandatory for all new starters.
- In 2019-20, over 2500 colleagues across the business received 'Customer First' training. This course provides information about the behaviours and skills needed to consistently deliver high levels of service and an excellent customer experience.
- Making sure our colleagues have the right skills to identify this and are empowered to take action to deliver a service that best meets the needs of the customers they are supporting is key to providing vulnerable customers the support they need. In order to make sure that our culture reflects this, we have ensured:
 - 100% of new colleagues have received consumer vulnerability training.
 - 100% of colleagues have received Customer First training.
 - 200 colleagues completed safeguarding training which supports colleagues working with young people. We have fast tracked our mental health training through MIND to those most likely to interact with customers experiencing issues.
- In 2021-22, we refreshed our vulnerability training programme, using a completely new training module designed with colleagues and key stakeholders which we rolled out in 2022. Since then, 2,442 existing employees have completed this refresher training.
- As well as training our employees to deliver high-quality services for our vulnerable customers, we have issued over 1,000 PSM toolkits to our frontline staff. The toolkits outline the support services available to our customers and make it quicker and easier to get customers the support they need.

Going beyond our plan

- As part of Northern Powergrid's ED2 Vulnerable Customer Programme we have committed to reviewing and enhancing customer vulnerability training for delivery (as a minimum requirement) bi-annually for all colleagues. Front-line colleagues must receive some training on a yearly basis— this training will:
 - Support our colleagues across the business in meeting our customers' needs;
 - Meet business commitments and support BMCS;
 - Contribute to Northern Powergrid achieving BSI 22458 inclusive service standards; and
 - Lead the business in delivering best in class services and support for our vulnerable customers
- We will be fast tracking mental health training for frontline staff as part of our induction for all new starters. Through our attitudinal tracking throughout the pandemic and partner feedback we know that mental health issues and isolation increased significantly. We have developed the training in partnership with MIND to promote the support they provide through our customer communications as well as to help support themselves and their colleagues.

Commitment	Status	Completion
5.5 - In conjunction with local authorities, identify socially-deprived areas and prioritise our support towards them during a power cut	Delivered	2022-23

- We made significant enhancements to the data we hold on social deprivation and we have continued to evolve our approach to engaging with customers so that our services and interactions are better tailored to their specific needs. In particular, we have worked in partnership with Northern Gas Networks on an innovative data tool called the Vulnerability Visualisation Tool. This tool, developed by Egnida, allows us to map vulnerability alongside network planning and operational response data, and gives us a much more comprehensive understanding of our customers' vulnerability. We are able to share these data outputs with Local Authorities and other local community organisations.
- Relationships have been built through meetings with Local Authorities across the area, and these have been used in conjunction with social mapping data provided by Experian, and the Egnida tool, to identify our most deprived areas. This gives us a good picture of what services are available across our region.
- We expanded our stakeholder mapping in 2020-21 to include over 120 users including the Local Authorities, NHS, Citizens Advice, and local housing authorities. These maps allow us to better coordinate incident response, giving access to the information needed to support local communities.
- We have also mapped our learnings from the data we have with Northern Gas Networks, allowing us to maximise the services available to our common customers. We have targeted campaigns, utilising our partnerships with local authorities and health services, to increase PSM uptake among hard-to-reach communities.
- We ensured there were agreements in place with all local authorities and continued to share our Priority Services data through Resilience Direct with local authorities and had a 35% increase in customers supported by personalised PSM service during a power cut.
- The additional data on vulnerability and increased quality of our PSM data allows us to deploy customer service vehicles, as well as the newly established on-site support teams, to those who need it most when they experience a long duration power cut.
- In support of these improvements, we have also designed bespoke face-to-face and online vulnerability training programmes for all Northern Powergrid employees. The training was developed in collaboration with experts from Money Advice Trust, and in 2018-19, we achieved our target to train all employees in the business. In 2021-22, we refreshed our vulnerability training programme, using a completely new and enhanced training module designed with colleagues and key stakeholders which was successfully rolled out to all employees. This training forms part of our induction programme for all new recruits. In 2019-20, over 700 frontline staff received 'Customer First' training, making sure our colleagues have the right skills to identify this and are empowered to take action to deliver a service that best meets the needs of the customers they are supporting, which is key to providing vulnerable customers the support they need.
- We have also improved our support arrangements during major incidents, such as our partnership with the National Caterers Association, which enables the deployment of food vans during extended outages. During Storm Arwen, we supplied 20,000 hot meals, made 1,300 hotel bookings prioritising the most vulnerable, distributed 2,000 winter-warmer packs, and visited 260 locations with our customer service vehicles.
- Beyond help during a power cut, our fuel poverty programmes continue to deliver record benefits in 2022-23. In total 9,000 customers directly benefitted from our programme in the year, resulting in combined benefits of £2.7m. A further 55,000 customers saw benefits through our community outreach programme and fuel poverty training course.

Commitment	Status	Completion
5.6 - With others, explore the feasibility of community-level aggregated-demand response in return for a community rebate	Delivered	2018-19

- Activating Community Engagement (ACE), an innovation project, led by Northern Powergrid in partnership with a consortium including GenGame Ltd, Open Energy, Serious Games International and Newcastle University, came to an end in 2017-18 after three years. The project, focused on residential demand side response (DSR), educated people about their energy usage and actively engaged communities to make small changes to how and when they use electricity in exchange for winning prizes for themselves or local groups.
- The close down report was published and learning dissemination events took place during 2018.
- We are using the learning developed during ACE on the GENDRIVE project to investigate the use of similar techniques to provide flexible electric vehicle charging. As a regulated network operator we are not driving the project but hold a consultative role in support of it.
- In October 2019 we published our update to our DSO strategy (DSO v1.1). This followed extensive engagement with our stakeholders on our initial proposals that were shared in December 2018, developed in close collaboration with the Energy Networks Association Open Networks project and flexibility providers. This has paved the way for some of our service level offerings in our draft ED2 business plan.

Commitment	Status	Completion
5.7 - Introduce friends and family register and 'good neighbour' scheme to support vulnerable customers	Delivered	2018-19

- Our Priority Services Membership (PSM) is set up so that a named contact (e.g. a friend or a family member) can be added if a customer requests additional support. We recruit onto our PSM through targeted campaigns using multiple channels, community partners, friends, family and carers, allowing them to register vulnerable households.
- We consider our approach to have delivered the outcome of this commitment without the need for a separate scheme, keeping our PSM service simple and easy to navigate.
- In 2016-17, we improved our online and paper based PSM application processes so that people who need to add a friend or relative can do so more easily. Our PSM welcome pack also includes referral postcards that can be given to family and friends.
- In 2017-18, we reviewed our approach to third party referrals to ensure it is in line with best practices in relation to data protection, maintaining our duty of care to known vulnerable customers by placing them on the PSM but awaiting contact with the customer before signing-off consent to share their data with partners.
- Direct communication took place with those on the PSM during the Covid-19 pandemic, including referencing those who would have someone who would benefit from being on the PSM to ensure more people were made aware of the PSM and the services available.

Commitment	Status	Completion
5.8 - Explore the possibility, with Northern Gas Networks, of upgrading to electrical connections in high-rise tower blocks for safety reasons	Delivered	2017-18

- Early in ED1, in collaboration with partners including Northern Gas Networks, Newcastle City Council and Newcastle University, we researched the sustainability of urban high-rise living at five tower blocks in Newcastle to consider the factors to be considered as we seek to improve the residents' comfort levels, energy costs and carbon emissions.
- The report identified the feasibility of specific interventions such as energy efficiency and new low carbon technologies as well as general considerations in order to implement improvements successfully. Particular focus was given to the feasibility of removing gas supplies in high-rise blocks, facilitated by replacing gas boilers with communal ground source heat pumps (GSHPs).
- Although it was recognised that GSHPs this would save money for the social landlord, the research concluded it would place additional cost burdens on the economically stressed occupiers of high-rise flats, due to the differential between the cost of electricity and gas at the time the report was published.
- Furthermore, it was concluded that that significant retrofitting of insulation would be needed and the costs of doing all the building upgrading meant that the project was not feasible.
- Although the project did not come to fruition, our engagement with the people impacted was highlighted as a benefit.
- As ED1 has progressed we have continued to work with local authorities and Northern Gas Networks, where appropriate, on local plans to renew and/or decarbonise high-rise tower blocks. Where additional electrical load is required, we have assessed the add load connections request and provide the necessary quotation of any upgrade works.

Commitment	Status	Completion
5.9 - Explore solutions to connect rural communities to the network	Delivered	2022-23

- Throughout ED1, we have also been working with Northumberland County Council to learn more about the off-grid properties in their operating area. Details on off-grid properties are often sparse and we have done work with them to identify properties that have a Unique Property Reference Number (UPRN) but no supply point nearby.
- There were potentially 495 off grid properties identified by the data merge between Northern Powergrid and NCC. We had to then assess each one and make a judgment if it was off-grid or if it was connected. Of the 495 candidates we concluded that 250 are likely off-grid. From here we were able to provide a projected cost for NCC to facilitate connection to these properties of £3.3m.
- More recently, we have been working closely with the Ministry of Defence (MoD) and the Home Office (HO) to explore the feasibility of connecting their rural communities in the Coquet Valley of Northumberland.
- In 2020, the HO approached us for a budget quote to connect three emergency service masts in the Coquet Valley as they didn't think, the sites, which had been built for a number of years, were resilient enough from an electricity supply perspective.
- The MoD also have 15 off grid properties along the valley which are tenanted by farming families who work the local land and maintain the MoD firing range areas. Therefore the MoD & HO decided to join forces to connect the masts and as many off-grid properties as possible.
- We deployed our overhead surveyors to site for around 3 months in the area, finding the optimum route, ensuring that it was feasible and maintainable in the future. We also incorporated more properties into the latest proposal, and this increased the overhead and underground cable lengths to around 130 spans and 4.7km of HV cable.
- As this work was to take place within the Northumberland National Park (NNP), we worked with the park to find the most feasible and acceptable overhead solution, and this was then agreed by the NNP committee in April 2023. The proposal has also now gained approval from the Secretary of State and is now fully wayleave cleared.
- We have provided the HO and MoD with an accurate quotation for the work so they can get their funding in place to complete the work. We have worked alongside all parties for the past 2.5 years to provide a feasible, buildable route and we have gone above and beyond to accommodate their project brief in what is one of the most challenging and picturesque places in both our licence areas.

Commitment	Status	Completion
5.10 - Provide more customer support vehicles along with more services in them	Delivered	2018-19

- Since we engaged on and wrote our ED1 Business Plan, our understanding of the needs of vulnerable customers and communities has increased exponentially. We know that proactive communication is key but when our customers are most impacted by loss of power, onsite support becomes increasingly important. We offer an extensive programme of onsite support from phone charging to hot meals, tailored to the needs of the individual and the situation.
- We have five customer support vehicles (CSVs) in our fleet and in 2020 we introduced our first three SilentPower vans as a pilot. After successful trials, the vans were released for regular use by our Operations teams and are now an embedded part of our power cut response for vulnerable customers and communities. They provide a clean alternative to generating power for customers during a power cut, replacing diesel generators and helping to reduce carbon emissions and reduce air and sound pollution.
- We provide various services from our CSVs, including hot water and microwave facilities, mobile phone charging points and refrigeration facilities for the storage of medication. In colder conditions, we offer customers winter warmer packs (hats, scarves, gloves, blankets etc.) to keep them warm, as well as face-to-face updates from Northern Powergrid employees on power cuts and more importantly, when the power is likely to be back on.
- Since 2018-19 we have implemented a new escalation process for enhanced service provision for vulnerable customers during power cuts which includes the deployment of CSVs to impacted communities. In 2020-21 we recruited six new Customer Service Managers who have responsibility for looking after vulnerable customers and communities on site, including the deployment of CSVs in their regions, leveraging the data we hold on social deprivation to best utilise these in power cut situations.

Going beyond our plan

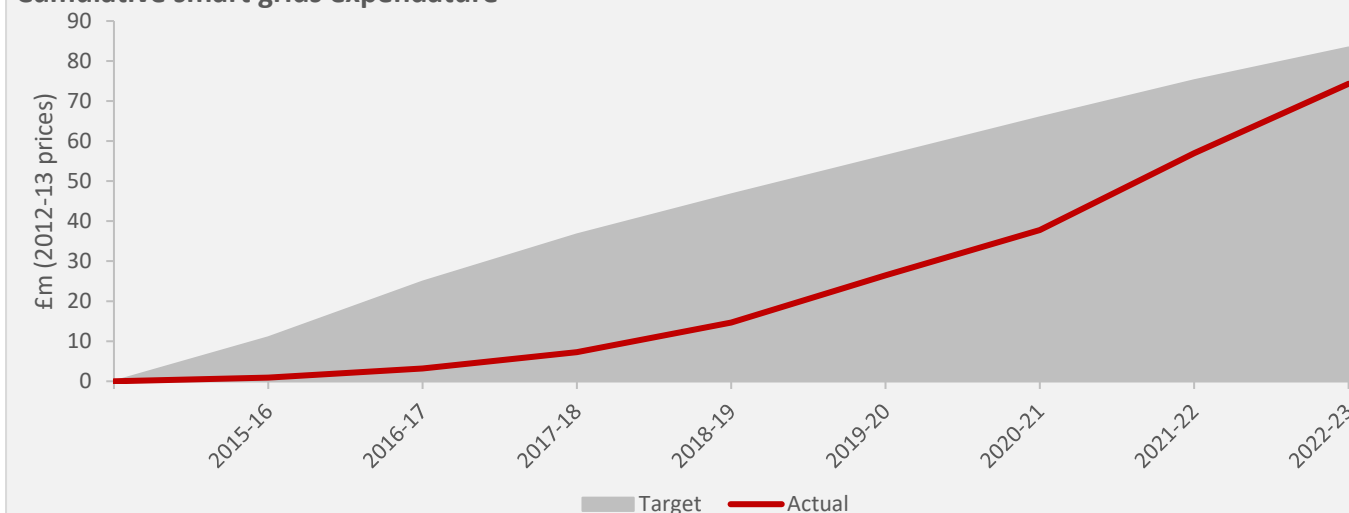
- In January 2023 we launched a successful trial of our new team of Pro-active on-site Responders, who respond to longer duration faults and provide customer information and support on site. This dedicated resource will ensure that our Customer Service Vans are available and supporting customers every day of the year and will support multiple faults each day. In the final quarter of 2022-23 alone, over 5,000 customers were supported by this service and the team have gone into full deployment to support customers throughout RIIO-ED2.
- We have also worked to improve the specification of our customer service vans to assist our responders in their activities. As well as reconfiguring the seating layout of the van and providing more charging points, we've also integrated a dedicated office area into the vans. This allows our Pro-Active On-site Responders to create and print communications directly on site, meaning they can provide written communications to customers more efficiently.
- We have also increased the number of Customer Service Vehicles within our fleet from 2024 to provide each of our regions with their own vehicle.

ANNEX F: SMART ENERGY

Commitment	Status	Completion
7.1 - Invest £83m in smart grid enabling technology that, as a minimum, pays for itself by 2031 – the more likely result will be a much larger saving, possibly as high as £400m-£500m	Delivered	2022-23

- Our investment in smart grid enabling infrastructure was one of our headline initiatives in our ED1 plan and remains a key enabler for our transition to Distribution System Operation (DSO) as illustrated in our ED2 plan. During ED1, delivery scope changes have occurred to ensure that we are providing solutions that are cost effective and meeting all foreseeable needs for increased visibility and control of the network. Several competitively tendered procurement exercises and proof of concept contracts have allowed us to de-risk the delivery and deploy efficient solutions across the individual programme elements.
- We delivered the investment that provides the foundational smart grid capability at our major substations; namely automatic voltage controller (AVC) replacements, remote terminal unit (RTU) replacements, and primary SCADA communication upgrades:
- With AVC relay replacement, we delivered over 90% of the total programme by March 2023, with some units not delivered as planned to avoid outage risk for our customers given system access constraints exacerbated by other works on-going on the network. We are mitigating the risks by progressing the works during spring and summer 2023. We will also be optimising our use of resource and system access through completing this work alongside other investment at these major sites which will help minimising the total cost of the work and impact on customers.
- For Primary SCADA communications system replacement, we delivered all but one site, with the final site being completed in summer 2023 owing to site access restrictions on a third-party tower site.
- On RTU replacements/upgrades, we completed 99% of the total programme by March 2023. To optimise efficiency and minimise customer outage risk, the remaining units will be delivered synergistically with major plant replacements planned for early ED2.
- We finished the year having installed over 2,600 LV monitors in total in ED1; more than double our original commitment.
- We closed out 2022-23 having completed the majority of our original commitment for Secondary SCADA communications system replacement. As planned, we ramped up the delivery of this programme of works significantly during the last 12 months. This ramp-up followed delays during prior years due to procurement challenges, impacts arising from Covid, and an extended proof of concept phase that was necessary to ensure that the technical solution would perform as required. The scale of this project has also increased during ED1 as to facilitate an expansion of the scope from the original ED1 plan volume of 5,500 outstations to over 8,900 outstations, arising from the increase in secondary automation during ED1. This significant increase in the size of the required network impacted the design of the network solution from what was originally envisaged in the ED1 plan.
- On systems we delivered enhancements to our data historian platform for processing and analysing network monitoring and metering data. We also explored via innovation projects the use of smart metering data in our business processes whilst implementing the necessary smart metering IT systems for securely accessing and storing that data.

Cumulative smart grids expenditure



Commitment	Status	Completion
7.2 - Invest £52m in smartgrid network reinforcement that pays back by 2023 through avoiding £86m of traditional reinforcement – a net saving of £34m compared with traditional reinforcement methods	Delivered	2022-23

- This commitment relates to the part of our ED1 smart grid development plan that covered the secondary reinforcement investment for creating HV/LV capacity and unlooping domestic services. The aim of the investment was to enable the customer connection of low carbon technologies (LCT) at a domestic level.
- The requirement for reinforcement in the ED1 period was below forecast due to the uptake of low carbon technologies being at the low end of ED1 forecast expectations and the impact of the COVID pandemic. We delivered £47.6m of required reinforcement investment across the period, 92% of our original expectation when we wrote the plan in 2013.
- During 2022/23 we have replaced almost 6,000 looped services at a cost of £2.6m. In total we have now replaced over 24,000 looped services at a cost of almost £15.4m, facilitating the connection of LCTs over ED1.
- During the period we have been a key player in working to mobilise and deliver the Green Recovery scheme to provide economic stimulus and accelerate investment for decarbonisation. Phase one of the scheme committed £30m of secondary network reinforcement investment to enable domestic customers to use LCTs in areas agreed with local stakeholders and this was funded from the allowances represented by this commitment.

Commitment	Status	Completion
7.3 Provide opportunities for customers to participate in demand-side response to reduce the cost of running the network	Delivered	2022-23

- We conducted a successful tender round in February 2022, procuring 1.4 MW of flexibility services with GWE Biogas. EV user flexibility contracted with Octopus was then subsequently added. Both flexibility service providers receive financial reward in return when operated successfully.
- We updated our stakeholders on our approach to deploying customer flexibility in our plan for 2023-28. This set out what we were doing to roll-out flexibility in the near- and medium-term. Our approach, in close collaboration with the Energy Networks Association Open Networks project and flexibility providers, is to seek opportunities to deploy customer flexibility to maximise efficient use of the network for three key use cases: deferral of traditional reinforcement, planned maintenance and emergency support.
- The Flexibility Services webpage on the Northern Powergrid website provides stakeholders with a transparent approach to the procurement and operation of flexibility services.
- The webpage includes:
 - annual procurement reports which inform stakeholders, in detail, of the tender process and outcomes;
 - a flexibility procurement statement which verifies our ‘flexibility first’ approach and code of practice;
 - regular newsletters to inform stakeholders of the most recent updates within the flexibility team; and
 - webinar recordings.
- The Introduction to Flexibility webinar provides stakeholders with a transparent overview of our approach to procuring and operating flexibility services. Much of this content was newly created in 2022-23.
- Our stakeholder engagement programme for procuring flexibility services has yielded valuable insights which continue to inform the development of our approach. We engaged directly with a wide range of stakeholders including end consumers seeking to optimise assets, EV charging operators, developers of storage projects and aggregators (spanning domestic demand, EV charging, commercial demand, generation and storage).
- We plan to implement established third party platforms to enhance our flexibility first approach in the future, contracting with Piclo Flex to improve the tender process and leverage the common-DNO Flexible Power toolkit to ensure effective operation of flexibility services.
- We published our third Flexibility Procurement Statement in March 2023, setting out our expectations for flexibility requirements for the coming year and giving stakeholders the opportunity to comment on our plans.

Commitment	Status	Completion
7.4 Modify our trading and customer service systems to realise benefits from the new smart meter data	Delivered	2022-23

- Throughout ED1, we have completed a number of key deliverables that modified our customer service systems to realise the full benefit from smart meter data.
- We purchased and deployed the smart metering module in PowerOnFusion, integrating with the Smart Metering Gateway to enable users in our Dispatch team to issue and receive Read Supply Status (ping) service requests, indicating whether a property is still on supply.
- This improved our customer service by assisting the speed of fault location activities. Our network control engineers have the ability to check whether meters connected to an asset, or within the predicted scope of an outage incident, are on supply. This in turn allows us to proactively contact customers if we believe they are off supply.
- We also developed our 'Intelligent Filter' PowerBI dashboards to support fault reporting and customer service operations. The dashboard to show a filtered view of outage data to Contact Centre colleagues. These colleagues are notified of any smart meter outage alarms that are not within the scope of an existing planned or unplanned outage incident.
- This improves our customer service as rather than waiting for customers to contact us we can proactively manage communications. In areas of our network, such as low voltage areas where we have no network (SCADA) monitoring, the smart meter data provides visibility.
- Our 'Support for Fault Reporting' Power BI dashboard further utilises smart meter data to firm up our historic reporting after faults have been restored. This improves the accuracy of our fault reporting and allows us to learn from some of our longer duration events. This process has significantly improved our appeals procedure when customers raise a complaint or challenge the start and end times for an outage.
- This has been particularly useful during post storm events, allowing us to provide a faster response for facilitating compensation payments and ensuring we were able to validate customer disputes over the duration of interruptions.

Commitment	Status	Completion
7.5 Use smart meter data to optimise network investment and reduce losses	Delivered	2022-23

- Our Boston Spa Energy Efficiency Trail (BEET) has been designed to dynamically optimise customer voltage using our smart grid enablers network technology and smart metering data. If we can reduce customer voltage, we can reduce energy consumption and reduce customer bills, along with a reduction in carbon emissions from reduced network losses or wider system losses from use of fossil fuel generation at peak times. The other benefit is less network reinforcement due to a reduction in demand.
- The BEET trial relies on smart meter voltage readings and smart meter data flows for its operation. Customer smart meter voltage measurements are used as the data input of an algorithm in what we call the BEET-Box. The algorithm uses these close-to real time measurements (from the previous half hour) to calculate a target voltage at the primary substation using smart AVCs that feeds these properties for the next half hour. Therefore, smart meter data is essential for the success of this project and roll-out to a wider area.
- We are currently testing the algorithm with real half-hourly data (the open-loop phase) to see what target voltages are calculated. Monitoring of primary voltages and smart meter voltage measurements is essential throughout this trial.
- We will be continuing our voltage optimisation activities and investigate its impact on losses in our 2023-28 Losses Strategy.

Commitment	Status	Completion
7.6 Trial the potential for combining smart grids and smart meter data to provide additional information services	Delivered	2022-23

- We have continued to trial the advanced use of smart meter and smart grid data through innovation projects to make advanced use of smart meter and smart grid data.
- Our Smart Network Design Methodologies project for example aimed to improve LV design and modelling tools, with smart meter data being used to inform probability distributions for customer demands used in network design assessments.
- The project was generally successful in providing a better understanding of how to model modern power networks and developing significantly improved demand modelling techniques across multiple voltage levels.
- However, integrating smart meter data was unsuccessful due to the low numbers of second-generation smart meters available from which to harvest data and the aggregation rules that prevented segregation of the phases needed for certain techniques on three phase systems. Now that our data privacy plan has been approved, we are exploring the options for integrating smart meter data into our next generation low voltage design tool.
- Our Boston Spa Energy Efficiency trial (BEET) also utilised smart meter data to monitor customer voltage and help us make decisions on how dynamically optimise customer voltage.
- The trial is running at three primary substations in the Boston Spa area of Yorkshire. Customer smart meter voltage measurements are used as the data input of an algorithm in what we call the BEET-Box. The algorithm uses these close-to real time measurements (from the previous half hour) to calculate a target voltage at the primary substation that feeds these properties for the next half hour. The signal from the BEET-Box will go via our new primary SCADA communications network to the new AVC units at the primary substations to control the voltage. Feedback will then come via the new low voltage monitoring, enhanced visibility from the primary network, and the smart metering data itself. All of this new network technology was installed as part of our ED1 smart grid enablers programme.

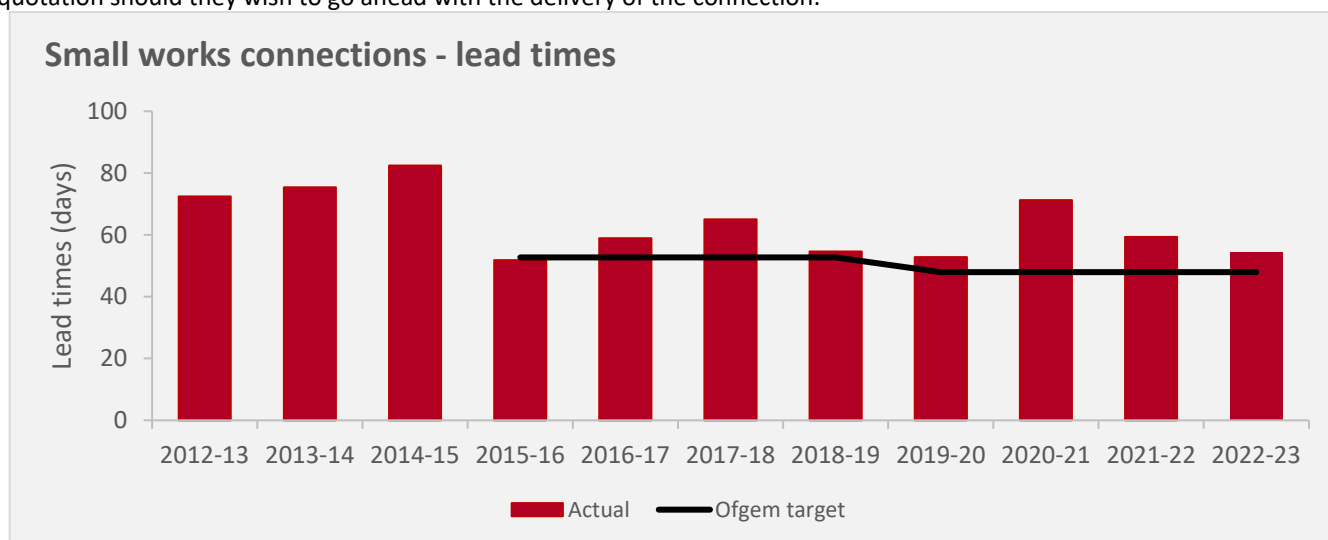
Commitment	Status	Completion
7.7 Establish a dedicated team of technical staff to perform timely modifications to our equipment when they are needed to enable the smart meter installation to proceed	Delivered	2018-19

- At the start of the period, we established contracts with our service providers to resolve defects identified through the smart meter roll-out on our behalf. We continue to work closely with them to ensure the arrangement delivers high quality service levels for our customers.
- We have continued to experience significantly higher smart meter defect rates than Ofgem's original forecast. Our service level agreement (SLA) performance for defect resolution is 80% for Category A and 90% for Category B (both against targets of 90%), having resolved significantly more defects than forecast.
- In 2018-19, we increased resourcing in our contact centre to create a dedicated smart team for responding to calls and online queries from Meter Operators and energy suppliers and these have continued through to the end of the ED1 period.
- We also implemented a database and reporting suite in the year to streamline the management of our remediation records for customer jobs.

ANNEX G: CONNECTIONS

Commitment	Status	Completion
6.1 Reduce end-to-end connection timescales for small works by more than 30%.	Missed (82% delivered)	-

- Across ED1 we have reduced connections end-to-end lead times for small works by an average of 19% relative to our ED1 business plan baseline. Our performance in the final year of ED1 saw us reduce our lead times to 54.6 days, a 25% reduction compared to the baseline.
- However, during the final year of ED1, we continued to pursue improvement in lead times, both at the quotation and delivery stage. By the end of the period, we achieved a 34% reduction with a monthly average of 47.6 days overall in the last quarter (January to March 2023). Whilst this improvement tracked behind a straight-line improvement profile for the ED1 period, due to some of the improvement being made in the final part of the period, we have exceeded performance against the targeted 30% reduction by 2023.
- The reductions have been driven by the expansion of our team who cover both quotations and delivery which has enabled us to increase our throughput rate and keep pace with the increasing levels of enquiries we received during the year.
- We have also kept a focus on the number of jobs being cancelled on the day of delivery. We have introduced a pre-work survey with customers to check progress to minimise the risk of the work not proceeding on their scheduled delivery day, which causes further delays to their connection. At the end of ED1 we achieved a success rate of 98% on average.
- Improving customer satisfaction continues to be our primary objective through offering a single point of contact for all connections and our quote-on-site service. This has driven a 7.4 percentage point improvement in satisfaction with our connections services since the start of ED1. Customers are able to meet their small works technician (single point of contact) to discuss requirements and liaise with them during the preparation of their quotation and then continue this liaison post-quotation should they wish to go ahead with the delivery of the connection.



Going beyond our plan

- We implemented a new quotation management system which integrated the application process with our Auto-design tool into small works to allow customers to receive a budget quotation online to provide a more accurate and timely information provided instantaneously. This also allows customers to accept their quotation and pay online.
- We have also introduced a fast-track service for customers requesting fuse upgrades for LCTs where we will complete the upgrade during the survey where possible, resulting in the quotation, acceptance and delivery being completed on the same day in those cases. For fuse upgrades, we also removed the charge to the customer for this service in preparation for the socialisation of these costs in ED2.
- We continue to target further improvements in lead-times for both quotations and delivery during the ED2 period, minimising the time jobs take to move through the set-up process by providing additional support to the set-up teams during busy periods. We have achieved this by ups-skilling our connections coordinators who mainly carry out quotation preparation.

Commitment	Status	Completion
6.2 Better payment terms - customers will not need to pay as far in advance.	Delivered	2015-16

- In response to customer feedback, we implemented a payment process in 2015-16 that allows small works connections customers to pay for connections work up to 12 days before the works begin.
- We continue to review customer feedback to understand how the 12-day payment process is delivering for our customers.

Going beyond our plan

- With the implementation of the new online quotation tool in 2022, this provides functionality for customers to accept and pay for their work. Having previously implemented the process for customers to pay for connections work up to 12 days before the work begins, we took the opportunity to review the payment process which was launched in 2015-16. Although this allowed customers to pay closer to the date their work is delivered, it introduced a further layer of complexity to the process to ensure payment was requested at the correct time ahead of work being completed. We decided to change our payment terms to 'pay on acceptance'. Our experience is that customers are happy to pay immediately on acceptance as they are more confident that they have secured their work dates in the queue.
- We will continue to review the feedback from our customers in terms of our payment process and look to further enhance the ability to allow customers to pay online without delay.

Commitment	Status	Completion
6.3 Provide more flexible quotations, including online self-service and faster quotes.	Delivered	2019-20

- In 2016-17 we updated our online services to provide customers with more information on pricing, timescales and capacity. This, along with our guided online process allows customers to complete more of their connection application themselves.
- In August 2019, we implemented a new quotation management system that allows small works connections customers to receive a quotation from our staff in the field via handheld technology.
- Our fast-track connections process also makes it easier and quicker for customers to turn a budget estimate into a firm quote. In January 2020 we launched AutoDesign, a free online, self-service, low voltage design tool, to help users identify the best new EV charging point connection locations. The system allows customers to quickly explore connection options and create budget estimates in minutes.
- In 2022, we further enhanced our online functionality to enable customers to apply online for new connections utilising Autodesign and updating our quotation tool to also enable online acceptance and payment.
- We have also significantly improved our service alterations process for our customers, giving them the option to obtain a quote online or request a pre-quote site visit ahead of receiving a connection quote.

Commitment	Status	Completion
6.4 Introduce a web-based system to help customers understand the capacity on our network and the likely cost of connection.	Delivered	2016-17

- In 2016-17 we introduced interactive generation and demand heat maps on our website. These webpages detail what capacity is available on our network, give a description of any network constraints that would affect connections and set out our guide prices and payment periods for typical jobs.
- We continue to support customers in using these tools. As well as providing ongoing assistance, we have delivered additional user training to ensure that stakeholders are better informed about how to use our heat maps and the network information available and have an opportunity to provide feedback to help inform future developments.
- In 2022-23 our Network Availability Heat Maps have transitioned to our Open Data Portal to provide customers and stakeholders a flexible choice of where they are more likely to be able to connect large-scale generation and demand projects without requiring network reinforcement using a Red, Amber and Green scale at its simplest. We have added a layer to our Heat Maps to reflect the latest transmission capacity at each of our Grid Supply Points according to the most recent Appendix G for each site. Connection dates for future generators rated greater than 1MW are given as agreed with National Grid ESO and listed in each Appendix G. Transferring our Heat Maps onto our Open Data Portal allows us greater flexibility to adjust our data to the current needs of our customers as situations arise.

Commitment	Status	Completion
6.5 Implement a tailored service for large projects, including ‘account management’ where needed or requested	Delivered	2019-20

- We rolled out a single point of contact model for connections to guide customers through the application and delivery process. The process enables customers to liaise directly with a named member of our team through the lifetime of their project. The single point of contact is accountable for the delivery of all aspects of the works and is able to resolve issues and communicate progress effectively.
- We have introduced measurable engagement milestones to ensure that our customers receive proactive updates from the single point of contact throughout the quotation process.
- In addition to our single point of contact model, we have also improved our connections surgery experience to provide all customers with the opportunity to communicate with us in respect to business planning and project development outside of the formal application process.

Going beyond our plan

- During 2023 we enhanced our approach to provide more coherent visibility of projects specific to each customer enabling the senior single point of contact to engage with customers more effectively, when required.

Commitment	Status	Completion
6.6 Provide a better service for non-contestable elements of work - regularly publishing key indicators.	Delivered	2015-16

- We established our dedicated Connections Input Services team in 2015 to serve Independent Connections Providers (ICPs) and Independent Distribution Network Operators (IDNOs), alongside implementing new streamlined competition in connections (CIC) processes.
- We publish key performance metrics for our range of input services on our website to report how we are performing to our stakeholders. These key indicators provide monthly and year-to-date average timescales in relation to time taken to issue SLC15 quotations along with the average time taken to approve an ICP design. This allows ICPs to establish timeframes for responses ahead of making applications or submission.
- We continue to run our monthly ICP surgeries, along with two bi-annual seminars and additional subject specific workshops engaging with our stakeholders to further develop our services in this area. New ICPs working in our licence areas are asked to attend a workshop with us to provide an overview of processes and requirements, to ensure a seamless progression for their enquiries.
- In 2022-23, 1.0% of our quotations in the year were issued outside of the guaranteed standard timescale – that’s 60 of the 7,353 issued.

SLC15 and SLC-15a– Quotations issued (Medium & Large works)	Within standard		Outside standard		Total
	Count	%	Count	%	
Northern Powergrid	7,293	99.0%	60	1.0%	7,353
Northeast	2,850	99.0%	25	1.0%	2,875
Yorkshire	4,443	99.0%	35	1.0%	4,478

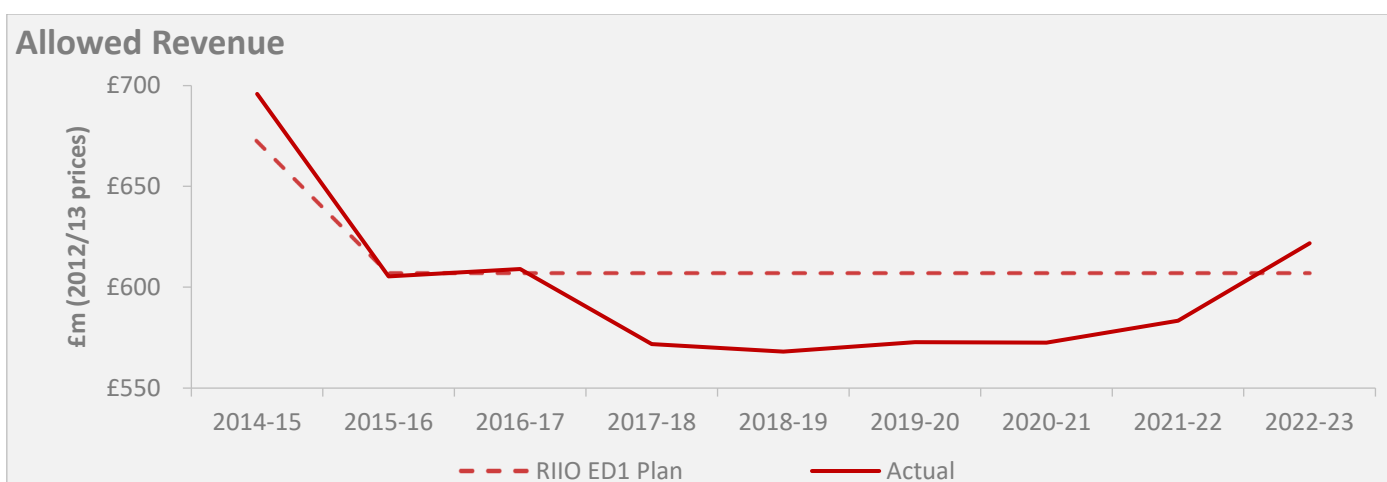
Going beyond our plan

- As competition has increased we have seen IDNOs adopt single and three phase small works connections to electric vehicles charging points. To better facilitate competition in this area we have revised our policy to make it no longer mandatory to install a link box for service connections, putting this decision at the discretion of the IDNO.
- Following stakeholder feedback, we also agreed to modify our existing Alternative Providers Register to highlight those ICPs which are suitably accredited and authorised to carry out Self Determination of Point of Connection (PoC), Self-Design Approval and Self Connections. This provides customers with further information to support their choice of connections provider and also reassures local authorities and other similar organisations of ICP authorisations in these areas.
- Looking ahead, we’re developing a wayleave portal following direct stakeholder engagement. The wayleave portal will provide an instant update as to the legal status of connection schemes. It will also facilitate more efficient signing of documents via electronic methods. We will look to run a trial with interested stakeholders and then provide this as a solution to all of our customers.

ANNEX H: FINANCE

Commitment	Status	Completion
10.1 - We will deliver an immediate 10% price reduction at the start of the period	Delivered	2015-16

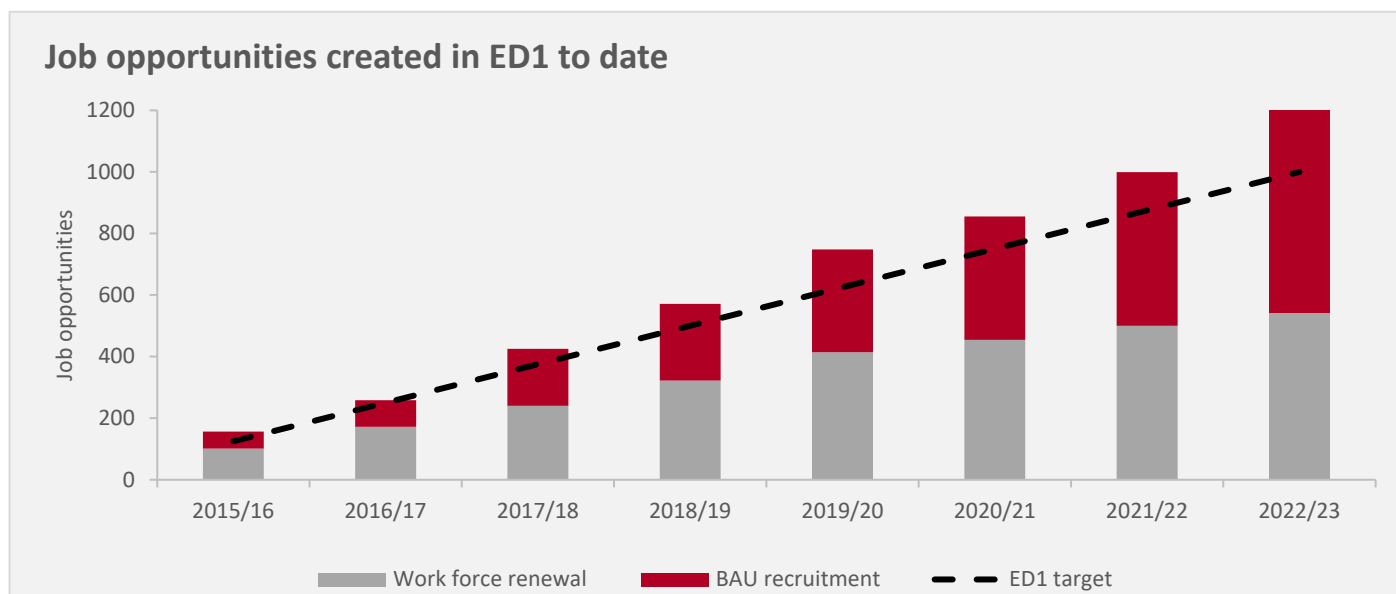
- We delivered a 14% price reduction to domestic customers in April 2015 (the start of the ED1 period).
- The underlying base revenues that we are allowed to earn remain flat in real terms (i.e. excluding the effects of price inflation) but our prices move during the period according to the way the regulatory price control mechanism works and changes in charging methodologies for the industry.
- The impact of the 14% price reduction and the other factors mentioned above is set out in the graph below showing our allowed revenue.



Commitment	Status	Completion
10.2 - We expect to create 1,000 job opportunities in the organisation during the ED1 period	Exceeded	2022-23

- We have created 1,331 job opportunities in our region since the start of ED1, including 543 new recruits via our workforce renewal programme (WFR), exceeding our target to create 1,000 job opportunities by the end of the period.
- In 2022-23 we created 332 job opportunities of which 43 were WFR recruits – all of which were apprentice and technical trainee roles in the operations part of our business.
- Our Workforce Renewal programme has gone from strength to strength since its launch in 2009. Over 600 craft and technical Apprentices have graduated so far. It is a major part of our workforce strategy to provide rewarding career opportunities with high-quality training and long-term career paths to ensure we maintain a highly skilled workforce to manage the network. We work hard to create a fulfilling and rewarding environment where our apprentices can thrive.
- We have also co-developed a new technical competency framework with our trade union partners to modernise the competency model for technical colleagues for structured career and development progression.
- In 2022 our apprenticeship programmes and training were rated outstanding by Ofsted. Northern Powergrid is one of just a handful of UK employer training providers to be able to offer Ofsted Outstanding-rated apprenticeship programmes. The rating recognises the company's commitment and ability to deliver high-quality apprenticeships and training to support the region's electricity network.

Going beyond our plan



- We are proud to be an anchor organisation in our region that can provide secure, long-term career opportunities in a range of careers. The UK's net zero ambitions and its transition to low-carbon energy have resulted in more jobs being created at Northern Powergrid than we had planned at the beginning of ED1. We have seen an increase in demand for low-carbon technology connections to our electricity network (such as charging points for electric vehicles) and commissioned major new investments worth over £70m through the government's 'Green Recovery' scheme following the COVID-19 pandemic. This resulted in us needing more skilled colleagues to join us to deliver more for our customers and we expect the demand from growth in low-carbon technology to continue to grow throughout ED2.
- Our regional operating model means we are able to adapt our operations to meet the differing needs and demands of the region we cover. We are developing our workforce to better reflect the regions we serve and have updated our recruitment practices to appeal to a broader range of people, with local activities in each of the areas to target under-represented groups.
- In 2022-23 we published our first Diversity, Equity and Inclusion plan which contains a series of actions that will help Northern Powergrid appeal to a wider range of people and to grow the diversity of our workforce with a particular focus on attracting more women and those minority ethnic and areas in our region with low employment or income levels.
- In April 2023, we published our latest annual gender pay gap report which showed a gender pay gap in hourly pay of 24.5% compared with 24.3% in 2021-22. We are committed to narrowing the gender pay gap and are doing this by actively seeking to attract more females into engineering and senior roles. It will take time, but we are targeting year-on-year progress and will continue to take positive actions to attract and retain a diverse mix of talented people to our company.

Contact us

We believe that our customers and stakeholders are the best judges of our performance. We always want to hear your views and opinions on the services we provide and your ideas for what we could be doing. If you would like to comment, you can contact us in a number of ways:

By email

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On Twitter

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(for information about the company and the work we do in communities)

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