Electricity Distribution

RIIO-ED2 Business Plan Commitments Report 2023-2028

Year One – 2023/24
31 October 2024

nationalgrid

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

NGED's Business Plan Commitment Report

In December 2021, National Grid Electricity Distribution (NGED) published a business plan for the five year period from April 2023 to the end of March 2028.

The business plan was submitted in line with the Ofgem framework known as RIIO-ED2; whereby Revenue = Incentives, Innovation and Outputs. This is the second business plan submitted under this framework.

The Business Plan Commitments Report details progress made against the 42 commitments we made within our Business Plan, and a number of new developments and initiatives introduced since its publication.

Contents

Executive summary
Foreword – an overview from our President
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24

A smart and flexible network 01
Community energy 05
Environment and sustainability 06
Innovation 11
Customers in vulnerable situations 13
Social contract 17
Customer service 19
Connections 22
Network resilience 24
Safety 26
Business IT security and cyber resilience 27
Workforce resilience 28
Expenditure 31

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Foreword - an overview from our CEO

National Grid Electricity Distribution (NGED) provides a safe and reliable electricity service to over 20 million customers. We look after a network of wires, poles, pylons, cables and substations; distributing electricity to homes and businesses across the Midlands, South Wales and the South West.

I am proud to publish our first Business Plan Commitments Report for the RIIO-ED2 period. The report provides a summary of the progress that we have made during 2023/24 against the ambitious outcomes that we agreed with our customers and stakeholders through extensive ED2 Business Plan engagement.

2023/24 was a year of significant mobilisation for NGED as we embraced opportunities to deliver for customers and developed enhanced capabilities to enable local decarbonisation pathways to net zero.

We've implemented a new operating model that focusses additional resources on Customer, Connections, Asset Management and Data and Digital and we've established a task force to deliver efficiency and customer value.

Thanks to the hard work and dedication of our teams, we have delivered a strong performance for customers and are pleased to report positive outcomes across the key measures of safety, customer, operational delivery, and finance.

It has also been a year of significant change for the country, and the environment in which we operate. With ongoing global conflicts, energy security remains a vital policy priority and, with the new Government now established, the UK has accelerated its ambitions to deliver a clean power network by 2030. As the macro environment, and more immediate energy landscape has continued to change around us, we have worked hard to achieve the outcomes we have set for ourselves, whilst acknowledging pressures, like supply chain constraints and ongoing uncertainty on system governance.

The **safety** of our colleagues and customers remains our number one priority and, during 2023/24, we maintained a lost time frequency rate below 0.1 per 100 staff.

However, following the tragic fatality of a team member in August 2023, we have launched a series of improvement plans this year as part of a comprehensive safety refresh, which includes focus on human factors and enhancing risk assessments.

We have also launched a behavioural safety programme prioritising the importance of talking about safety, encouraging staff to stand up for safety, and using behavioural safety techniques to continuously strengthen our organisational safety culture.

For **customers**, we have refreshed our strategy, undertaken detailed customer segmentation analysis and new journey mapping – all with a focus on better understanding our customers' needs and expectations.

Over the course of 2023/24, we provided significant support through our Customer Vulnerability programme and delivered wide-ranging reform on connections, in line with the Government and industry Connections Action Plans.

In terms of **financial** performance, for the first year of RIIO-ED2, we have incurred Totex expenditure of £991m (20/21 prices) against allowances of £1,132m. This expenditure is in line with our expectations and we are planning to increase our pace of investment in the coming years in order to achieve our RIIO-ED2 commitments.

Reflecting on the 2023/24 business year, I believe there is demonstrable evidence of how we are delivering our ED2 commitments whilst continuing our journey to build capability, drive efficiency and ensure we are a leading distribution network and system operator that delivers for customers.

Cordi O'Hara OBE,
President of National Grid Electricity Distribution

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Foreword - an overview from our CEO

Key performance highlights from this year have included:

Delivering a reliable network whilst responding to significant storm events. 2023/24 presented a series of challenges for network resilience with

13 named storms

Five of these storms met the thresholds for exceptional events, meaning that our teams responded to more than 8-times their usual faults and were still able to

restore 99.9%

of customers within 24 hours.

Maintaining Broad Measures Customer Satisfaction of

8.97/10

whilst also achieving Major Connections Customer Satisfaction of 8.59/10.

Our functionally separate DSO has continued to create and engage with flexibility opportunities across the network, increasing the number of

flexibility assets to 70,000

and releasing significant capacity through flexibility procurement, enabling the

deferral of £80m

of traditional network reinforcement.

During 2023/24 we launched our DSO strategy and our independent DSO panel - the panel will play a key role in providing rigorous, strategic advisory challenge to our DSO plans.

Securing the release of

10GW of additional connection

capacity through Technical Limits trials and accelerating schemes by an average of 6.1 years.

Continuing work to digitalise the customer connection journey, making it quicker and easier for customers to connect.

We have enabled over

80,000 LCT connections

during the year, with 89% of direct enquiries approved on the same day.

Progressing our

Diversity, Equity and Inclusion

agenda to ensure that our employee base better reflects the communities we serve.

Supporting over

23,000 vulnerable customers

to make savings of

£23.4million

on their energy bills through our Customer Vulnerability programme.

Progressing our commitment to become a

net zero organisation

by 2043, by meeting the in-year target for our validated science-based target.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Who we are and what we do

We are the nation's largest Distribution Network Operator (DNO) by geography, powering more than eight million homes and businesses across England and Wales.

Our main responsibilities to our customers:

Keep the power flowing
Operating our network, to ensure we power the lives of all of our customers.

Maintain equipment
Maintaining the condition and therefore reliability of our assets.

Fix the network
Fixing our assets if they get damaged or if they are faulty.

Connect customers
Upgrading the existing network and expanding it to provide additional electricity supply or capacity to our customers who want to connect.

Operate a smart system
Operating a smart, dynamic system by managing two-way power flows and flexibility services.

We are not a supplier. We do not buy and sell electricity, or directly bill customers. The distribution network sits between the high voltage transmission network and suppliers.

The UK electricity system is experiencing its most significant period of transformation in decades, with a national commitment to achieve net zero by 2050 written into law and a new Government with ambitions to see a clean power electricity grid by 2030. The ambition to reach net zero is changing the way that electricity is generated and consumed, with widespread renewable generation at a distribution level, and adoption of low-carbon technologies such as heat pumps and electric vehicles across homes and businesses.

Our networks are becoming smarter and more active; to adapt to changing customer needs we have established a functionally separate Distribution System Operator (DSO) and independent DSO Panel, in the first year of RIIO-ED2.

The DSO is responsible for:

- **Establishing processes to operate the network more flexibly, utilising systems thinking to unlock latent capacity.**
- **Forecasting supply and demand in more detail.**
- **Avoiding or deferring, where possible, the need for costly conventional reinforcement of the network by contracting for flexibility services from distributed energy resources.**
- **Locally managing generation output, load and power flows.**
- **Facilitating better whole system coordination outcomes.**

Our vision is to be at the heart of a clean, fair and affordable energy future.

We continue to look for and make use of innovative techniques and encourage creativity so that we carry out our work in an effective and efficient manner.

This helps to ensure value for money for our customers and stakeholders and a fair return for our shareholders.

Independent Steering Group

We are in the process of establishing an Independent Steering Group (ISG) in line with Ofgem's framework for Enhanced Engagement.

The ISG will provide challenge and scrutiny to the company, ensuring that we engage widely and openly with our stakeholders.

We will share RIIO-ED2 performance data with the ISG, with the aim that the group can provide feedback on our performance in future years of Business Plan Commitments reporting.

The ISG will also be at the heart of our RIIO-ED3 business planning, delivery and decision making.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Performance snapshot for 2023/24

Our performance snapshot provides a set of data, common across all UK DNOs, which allows a high level performance comparison.

	West Midlands	East Midlands	South Wales	South West
Number of Customers				
No. of Customers on DNOs network	2,523,467	2,669,235	1,159,228	1,657,791
Network Length				
Overhead lines (km)	22,954	20,455	17,875	27,305
Underground lines (km)	43,300	55,298	18,415	24,180
Other (Subsea cables) (km)	0.4	-	9	84
Total DNO Network Length (km)	66,255	75,753	36,299	51,569
Total Expenditure (TOTEX)*				
Total Expenditure (£m)*	278	299	158	255
RIIO-ED1 allowance (£m)*	318	347	190	277
% of Allowed	88%	86%	83%	92%
Unrestricted Domestic Tariff (adjusted for typical consumption)				
Tariff Charge (£)*	76	68	90	96
Quality of Service (unweighted)**				
Customers Interrupted (including exceptional events)	44.5	44.7	43.9	58.7
Customers Minutes Lost (including exceptional events)	29.7	25.9	22.4	43.0
Customers Interrupted (excluding exceptional events)	42.5	43.5	43.0	53.6
Customers Minutes Lost (excluding exceptional events)	28.2	24.8	21.3	38.1
Connections				
Time to quote (LVSSA) (Days)	2	2	2	3
Time to connect (LVSSA) (Days)	27	27	29	39
No. of completed connections per regulatory year***	8,409	12,345	5,679	7,908
Customer Service				
Overall Broad Measure of Customer Satisfaction score (out of 10)	8.93	9.01	9.10	8.88

* Values are quoted in 2020/21 prices, as this is the price base used for setting allowances, within licence conditions and within Ofgem financial models. Costs incurred in 2023/24 have been deflated to be comparable to the allowances.
** The values shown are based upon data submitted to Ofgem in table SI1 as part of annual reporting on 31 July 2024. The values in SI1 vary to those stated in other sections of this report. SI1 states the total unweighted impact, whereas in this report we compare performance to targets (which includes application of weighting factors defined by Ofgem). Other differences may arise due to the values used for exceptional event exclusions which are not finalised by Ofgem until after 31 July 2024.
*** Sum of metered and unmetered connections.

	West Midlands	East Midlands	South Wales	South West
Annual Vulnerability Report - qualitative summary				
Our Annual Vulnerability report, published in July 2024, details the steps that we've taken through partnership working to deliver substantial value to thousands of customers. We have helped to reduce fuel poverty, enabled access to low carbon technologies, and provided support and additional care to customers with a range of additional needs. We have delivered more than £23m of fuel poverty savings this year, supporting 23,705 customers. As we experience a significant uptake of low carbon technologies on our network, we are supporting customers in vulnerable situations to access the benefits this brings.				
Major Connections Annual Report - qualitative summary				
In a challenging environment where demand for connections has increased significantly, we have delivered strong performance across a suite of performance measures, as detailed in our first Major Connections Annual Report, published in July 2024. By establishing a new Connections directorate NGED is well placed to deliver against customer expectations. We have continued to expand our digital offering to connection customers with the aim of allowing customers to manage their connection through all stages - pre and post application.				
Connections				
Aggregate customer satisfaction score (out of 10)	8.67	8.82	8.96	8.61
A smart and flexible network				
DSO Performance Panel Score (out of 10)	8.24			
Stakeholder satisfaction score (out of 10)	7.77			
Safety performance - qualitative summary				
In 2023/24 we maintained a lost frequency time rate below 0.1 per 100 staff, meeting our in year targets. There have been no prohibition notices issued, however, the tragic loss of one of our team members in August 2023 was a sobering and difficult reminder of how dangerous our sector can be. We have responded by triggering a comprehensive safety refresh across the whole organisation.				
Community Energy - qualitative summary				
During 2023/24 we undertook a range of activities designed to support the development and delivery of community based energy schemes. This included four Community Energy in person events and three online events, attended by 214 stakeholders. We recognise that further work can be done to understand the issues preventing Community Energy groups from connecting to our network and we will therefore work with stakeholders to gain further insight during 2024/25.				
Environmental impact - qualitative summary				
NGED has committed to becoming a net zero organisation by 2043 (i.e. for scope 1 and 2 emissions) in line with National Grid's validated 1.5°C science-based target (SBT). To monitor our progress we have established a pathway with annual targets for each year of RIIO-ED2. We have met our targets for 2023/24.				
Innovation - qualitative summary				
NGED has delivered 24 innovation projects during 2023/24, developing business-as-usual solutions that will assist us on our pathway towards decarbonisation and net zero.				

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Our RIIO-ED2 Business Plan

Our Business Plan was created with customers and for customers. Extensive stakeholder engagement was undertaken, with unprecedented levels of scrutiny and collaboration, in order to identify the outcomes that our customers wanted us to prioritise as we invest in the network.

During the five year RIIO-ED2 period we are focused on delivering against four overarching customer outcomes, as detailed below.

- **Sustainability** - Lead the drive to net zero as early as possible.
- **Connectability** – Customers can connect their electric vehicles, heat pumps and renewable generation.
- **Vulnerability** – First class vulnerable customer support programme where everyone benefits in a smart future.
- **Affordability** – Maintain excellent customer service, safety and network performance and transform the energy grid for future generations, while keeping bills broadly flat.

We have committed to delivering 42 outputs in the following categories:

Category	A summary of our commitments
A Smart and flexible network	Deliver a smart, digitalised electricity network to enable net zero for our stakeholders.
Community energy	Help local communities to decarbonise, supporting the connection of community energy schemes.
Environment and Sustainability	Reduce NGED's impact on the environment and facilitate the use of low carbon technologies (LCTs).
Innovation	Utilise innovation to deliver efficiencies and make NGED's data available to our customers.
Customers in vulnerable situations	Support customers in vulnerable situations by expanding and improving our Priority Services Register, helping customers to access new technologies and targeting fuel poverty.
Social contract	Deliver enduring, long-term support for our communities.
Customer service	Provide excellent customer service.
Connections	Enable customers to connect to the network quickly and cheaply.
Network resilience	Maintain a reliable supply of electricity and make the network more resilient to external events.
Safety	Minimise the safety risks associated with operating the network.
Business IT security and cyber resilience	Protect against the risk of disruption to our operations by developing the resilience of our IT systems.
Workforce resilience	Develop our reputation as an employer of choice and build a workforce that reflects the diversity of the communities that we serve.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

A summary of our output performance for 2023/24

A smart and flexible network

- **1.** Drive net zero
- **2.** Ensure capacity is available for LCTs
- **3.** Drive delivery of LAEPs and local energy surgeries
- **4.** Publish an annual DFES
- **5.** Ensure flexibility first
- **6.** Develop flexibility markets
- **7.** Achieve whole systems outcomes

Community energy

- **8.** Connect community energy groups
- **9.** Support community energy groups

Environment and sustainability

- **10.** Achieve science-based targets for net zero
- **11.** Reduce leakage from fluid filled cables
- **12.** Reduce leakage from SF_6 insulated switchgear
- **13.** Waste reduction and minimising waste to landfill
- **14.** Improve PSR data quality
- **15.** Improve biodiversity

Innovation

- **16.** Deliver a stretch efficiency through ED2
- **17.** Make data available via an interactive API

Customers in vulnerable situations

- **18.** Offer bespoke energy plans to PSR customers
- **19.** Maximise fuel poverty savings
- **20.** Expand the reach of our PSR
- **21.** PSR data sharing
- **22.** Improve PSR data quality

Social contract

- **23.** Community matters fund and volunteering
- **24.** Publish an annual Social Contract
- **25.** Provide PV funding for schools and community buildings

Customer service

- **26.** Improve customer satisfaction
- **27.** Deliver speedy telephone response times and minimise abandoned calls
- **28.** Deliver a speedy response to social media and webchat queries
- **29.** Provide further information on planned work
- **30.** Resolve complaints swiftly

Connections

- **31.** Allow online self assessment for connections
- **32.** Provide for curtailable and flexible connections

Network resilience

- **33.** Minimise customer interruptions and customer minutes lost
- **34.** Support worst served customers
- **35.** Deliver network asset risk reduction
- **36.** Reduce flooding at key sites

Safety

- **37.** Increase safety at school sites
- **38.** Provide electrical safety education

Business IT security and cyber resilience

- **39.** Reduce data risks related to cyber attacks
- **40.** Ensure IT network security resilience

Workforce resilience

- **41.** Deliver best practice employment practices
- **42.** Deliver annual improvements for Diversity, Equity and Inclusion

Key

- Achieved
- Progress made but not fully delivered
- Not met

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

A smart and flexible network

Developments in the energy system

1.01 The challenge of the Government's ambition to decarbonise the electricity system by 2030 requires DNOs to deliver a radical change in the way that they operate.

1.02 This ambition to reach net zero is changing the way that electricity is generated and consumed, with increasing levels of low carbon generation being connected to the distribution network and increased consumer uptake of new low carbon technologies (LCTs) such as electric vehicles and heat pumps for domestic heating.

1.03 As a result DNOs have the challenge of managing different power flows across the distribution network and increasing levels of demand alongside delivering our core responsibility of powering people's lives. These changes require the evolution of systems and processes for forecasting demand and managing the network. There is also a need to collect increasingly comprehensive network data to allow the development of new solutions to unlock additional capacity. During RIIO-ED2 NGED will develop a smarter, more dynamic energy network.

1.04 As a result, we have prioritised the development of our Distribution System Operator (DSO) function and capabilities, creating a functionally separate DSO and Independent DSO Panel. Further information on our remit and the progress made within our first full year as a functionally separate DSO can be found on our website **nationalgrid.co.uk/dso** which includes our DSO Strategic Action Plan, DSO Performance Panel Report and DSO Performance Metrics (KPIs).

Enabling low carbon technology to connect

1.05 Decarbonisation of transport, heating, and localised electricity generation will result in increasing connection of LCTs at lower voltages and NGED has the responsibility to ensure that sufficient capacity is available to facilitate these connections. As part of our RIIO-ED2 Business Plan we committed to the following interrelated outputs:

Output 1	Drive the achievement of net zero across our regions sooner than 2050 in line with stakeholder plans by ensuring network capacity is available.
Output 2	Ensure customers are able to connect low carbon technologies quickly and easily with the network ready to support at least an additional 1.5 million electric vehicles and 600,000 heat pumps by 2028.
Output 4	Deliver a network to meet the evolving needs of our customers by aligning our future energy forecasts with the plans of local regions and the Electricity System Operator, by updating NGED's Distribution Future Energy Scenarios every year.

1.06 On an annual basis we develop Distribution Future Energy Scenarios (DFES) which identify how customers will interact with our network in the future. Regionally specific information is gathered in order to identify the types of technology and customer behaviours that may need to be accommodated. Our latest DFES was published in February 2024 and can be found at the following address: **nationalgrid.co.uk/dso/distribution-future-energy-scenarios**

1.07 We support local authorities with the development and publication of Local Area Energy Plans (LAEPs) and include data from published LAEPs within our DFES. A LAEP sets out the change required to transition an area's energy system to net zero in a given timeframe.

1.08 By reflecting the ambition of local authorities within our DFES we will ensure that our strategic network planning provides sufficient capacity for the transition to net zero. Supporting the development of LAEPs allows us to utilise local knowledge and plans within our licence areas to provide high certainty forecasts.

1.09 Using the DFES we develop Network Development Plans (NDPs) to forecast and identify future network constraints. We use optioneering to develop our Distribution Network Options Assessment (DNOA) which outlines how we plan to invest in our network to solve constraints, either through the development of flexibility services or conventional reinforcement where flexibility is not an option. DNOA is updated every six months and the most up-to-date version can be found on our website **nationalgrid.co.uk/dso/distribution-future-energy-scenarios/distribution-network-options-assessment**

1.10 Our latest DFES reflects the fact that customer uptake of LCTs has not accelerated as quickly as we anticipated within our 2021 business plan, with an assumed 89,620 Electric Vehicles and 12,637 Heat Pumps connected within 2023/24.

1.11 Our latest forecasts indicate that uptake for the period of RIIO-ED2 is likely to be as follows:

- 231,000 additional heat pumps
- 1,050,000 additional electric vehicles.

1.12 We anticipate that customer demand will fluctuate over the RIIO-ED2 period as a result of influencing factors such as the costs of new and emerging technologies, government policy and investment, and cost of living concerns. Whilst the volume of connections will fluctuate over the ED2 period as a whole, our annual forecasting process ensures that we are on track to provide the capacity that customers require when they need it.

1.13 In 2023/24 we saw 33 MVA of capacity required as a result of new LCT connections; we exceeded this requirement via a blend of conventional reinforcement and flexibility, procuring 1.3 MVA of flexibility across NGED, during times of peak demand, and increasing net transformer capacity by an average of 123 MVA in each of our four licence areas.

1.14 To ensure that customers are able to connect LCTs quickly and easily we have introduced an online self-assessment tool for domestic LCTs on our website. During 2023/24 we enabled over 80,000 LCT connections, with 89% of direct enquiries approved on the same day.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

A smart and flexible network

Enabling low carbon technology to connect

Output 3	Make it easy for customers to adopt low carbon technologies and achieve net zero in their region much sooner than 2050 by driving the delivery of Local Area Energy Plans and proactively engaging all local authorities each year via 90 local energy surgeries.

1.15 In order to drive the delivery of Local Area Energy Plans (LAEPs) we have developed guidance on the information that we require in order to incorporate local plans into our network planning. A detailed suite of information can be found on our website at the following link: **nationalgrid.co.uk/grid-zero-zone/supporting-stakeholder-decarbonisation/laep-find-out-more**

1.16 We have committed to facilitating local energy surgeries so that NGED representatives can assist Local Authorities to scope, develop, and publish a LAEP. We provide a range of data sets and resources on our Connected Data Portal to support this activity. The Connected Data Portal is a comprehensive source of real-time and historical data on the energy systems provided by National Grid.

1.17 We have 120 Local Authorities active across our region and we have undertaken stakeholder engagement activity with all during 2023/24. To date, five LAEPs have been published, with a further 13 close to completion. It should be noted that a LAEP can take 12 to 18 months to develop, and progress is dependent on a range of factors such as budget and resource levels within the Local Authority.

1.18 The process for delivering Local Energy Surgeries was established in 2022/23 and to date we have far exceeded our expected activity levels, undertaking 247 surgeries (specifically with Local Authorities) during 2023/24.

1.19 In November 2023 Ofgem confirmed the introduction of a new regional strategic planning function to be delivered by the National Energy System Operator. It is anticipated that the Regional Energy Strategic Plan (RESP) will enable the coordinated development of the energy system. Ofgem are in the process of consulting on the proposed policy framework for the RESP and whilst we will continue to support the development of LAEPs we recognise that our approach will need to adapt to the shifting landscape of regional planning.

Case Study

Helping local governments plan their energy futures in South Wales

Local authorities are in a unique position to influence UK carbon emissions and NGED's DSO is working with them to establish Local Area Energy Plans.

In Wales the DSO team has contributed to the development of 13 LAEPs in the last 18 months, which are close to completion. We have provided local authorities with information on the challenges and opportunities of decarbonising electricity, the potential for unlocking network constraints and where investment could be prioritised.

Local authorities draw on their knowledge and experience across housing, transport, regeneration and more in order to put together a detailed forecast of behind the meter generation, storage and demand.

This can vary from the roll out of electric community buses to heat pumps and EV chargers.

This resulting information shows how and when communities expect to use the NGED network and provides evidence of the need for investment. Working with local authorities enables NGED to ensure that energy networks are ready to facilitate net zero at the least cost to consumers.

The granular detail provided through LAEPs and the Welsh Government's holistic view of the country's future energy needs outlined in 'Future Energy Grids for Wales' provides a valuable, coordinated, and comprehensive view of the future energy system in Wales.

Output 5	Keep bills as low as possible and minimise the need for load related reinforcement by adopting a "flexibility first" approach to maximise utilisation of the existing network.

1.20 Electricity networks require network capacity to be sufficient for the loads on the network. As demand increases, more capacity is required. The traditional approach to providing additional capacity has been to reinforce the network by installing larger capacity assets or additional assets.

1.21 Whilst we know that significant network expansion will be needed to achieve net zero, we have been at the forefront of adopting flexibility services, which use lower cost alternatives to unlocking capacity, deferring capital investment, and helping keep bill impact low.

1.22 NGED has established and facilitated new markets for customers to provide flexibility solutions and have adopted a 'Flexibility First' approach, which explores the potential to use flexibility services to unlock capacity in the first instance, before moving ahead with capital investments.

1.23 Cost benefit analysis is undertaken to determine the economically optimal solution, using an industry standard methodology. Our Distribution Network Options Assessment (DNOA) describes the processes undertaken and the investment decisions made for each constraint on the network. The DNOA is updated and published every six months, the latest version was published February 2024 and can be found on our website at **nationalgrid.co.uk/dso/distribution-future-energy-scenarios/distribution-network-options-assessment**

1.24 During 2023/24 we procured 17 GWh of flexibility availability, with 19,000 dispatch events, deferring over £80m (in today's prices) of investment in conventional reinforcement, delivering consumer savings.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

A smart and flexible network

Enabling low carbon technology to connect

Output 6	Unlock capacity from the existing grid and therefore avoid the need for reinforcement by stimulating the development of flexibility markets and implementing simple, fair and transparent rules for procuring flexibility services, with a six month tender and exceptional customer satisfaction for flexibility services.

1.25 We design our flexibility markets and procurement processes to be open and transparent, to drive maximum participation from diverse sources, in a technology neutral way.

1.26 Our Market Gateway, launched in July 2023, is the entry point for prospective flexibility service providers. We developed the Market Gateway, based on extensive engagement with Flexibility Service Providers (FSPs), to deliver the contracting and technical on-boarding processes that they need to complete to become eligible. Today we have 70,000 assets registered on Market Gateway, compared to only 1,000 in 2022/23, this represents a doubling in the number of FSPs registered.

1.27 In March 2023 we introduced a new approach to flexibility services procurement: using an overarching contract. These contracts mirror those used by the Electricity Systems Operator (ESO)* in their procurement of flexibility. The ESO is responsible for the transmission of high-voltage electricity before it passes to the distribution network operators.

1.28 The new contracts allow us to manage compliance with the government's Utilities Contract Regulations, while accommodating more flexible procurement.

1.29 Rather than contracting for every competition, FSPs enter into an overarching contract. This approach means we don't need to run a formal tender for every competition, reducing the administrative burden both for us and for FSPs.

1.30 We have played a leading role with our industry body, the Energy Networks Association's (ENA) Open Networks workstream to standardise contracts across DNOs, in response to stakeholder feedback. Our overarching contract approach has become a benchmark which the rest of the industry is now moving towards, delivered through Open Networks.

1.31 When our RIIO-ED2 business plan was submitted in 2021 we operated six monthly procurement windows for flexibility. However, in May 2023, we introduced functionality for FSPs to register and validate their assets with us at any time. This has enabled FSPs to work to their own timetable, whilst allowing NGED to introduce short-term (weekly) competitions for the provision of flexibility.

1.32 We publish a host of data to support engagement in our flexibility markets, such as our Flexibility Services Procurement Statement which can be found on our website at **nationalgrid.co.uk/distribution-flexibility-services-reporting**

1.33 This statement summarises changes to the way flexibility products are procured including contractual amendments. It acts as a guide to stakeholders in navigating publications and available data with the aim of supporting participation in our flexibility markets. The statement explains the process for publication of flexibility requirements and the different products required. It also provides an introduction to the following sources of information:

- **Network Flexibility Map:** The map provides a forecast of flexibility requirements for our Higher Voltage zones, over a five-year period. This includes the availability windows and expected market volumes. The map can be found on our website **nationalgrid.co.uk/network-flexibility-map**
- **The Market Gateway:** The gateway hosts all our trade opportunities. This site details each of the requirements as well as the received responses from service providers, and our awarded trades.
- **The Connected Data Portal (CDP)** also supports flexibility markets, as it hosts all the raw network data that we make available, relevant data includes the detailed flexibility requirements across our network. The CDP can be found at **https://connecteddata.nationalgrid.co.uk/**

1.34 We measure customer satisfaction on an annual basis as part of Ofgem's DSO Incentive. A stakeholder survey measures customer satisfaction and includes questions on 'Flexibility Market Development'. For 2023/24 our Customer Satisfaction score for flexibility was 7.57 out of 10. We aim to benchmark our performance against other DSOs in order to understand best practice and ways that we can seek to continually improve on

Output 7	Deliver solutions that achieve the greatest social benefit to customers by utilising a whole system approach for major reinforcement to improve network efficiency. We will undertake three regional collaboration trial schemes by 2025 involving gas, electricity, water, waste, transport and heating sectors.

1.35 We recognise that delivering net zero will require coordinated action at national, regional and local levels. Our Whole System strategy clearly identifies roles and responsibilities, with the aim of optimising processes for engagement with local and regional stakeholders to build strong relationships that enable effective cooperation.

1.36 Our people are critical in recognising the importance of whole systems and identifying potential solutions, and our processes are designed to ensure that whole systems solutions are always considered. This approach, together with the provision of open data, regular stakeholder engagement and the development of innovation projects ensure that our delivery of whole system solutions continues to evolve.

1.37 Working with our partners across the whole energy system helps us to make sure that investment in our physical network infrastructure is delivered where and when it is needed, in a way that minimises the cost to consumers.

1.38 We engage with a wide range of stakeholders across the whole electricity system including:

- the Electricity Systems Operator, Transmission Operators, other DNOs and Independent Distribution Network Operators,
- other electricity market actors such as suppliers, aggregators/virtual power plants and Flexibility Service Providers,
- actors across the whole energy system such as gas distribution networks, water and transportation,
- industry and representatives of businesses at various levels,
- communities/social interest bodies and also national, regional and local governments.

* Please note that as of 1 October 2024 the ESO was transferred into public ownership as the National Energy System Operator (NESO).

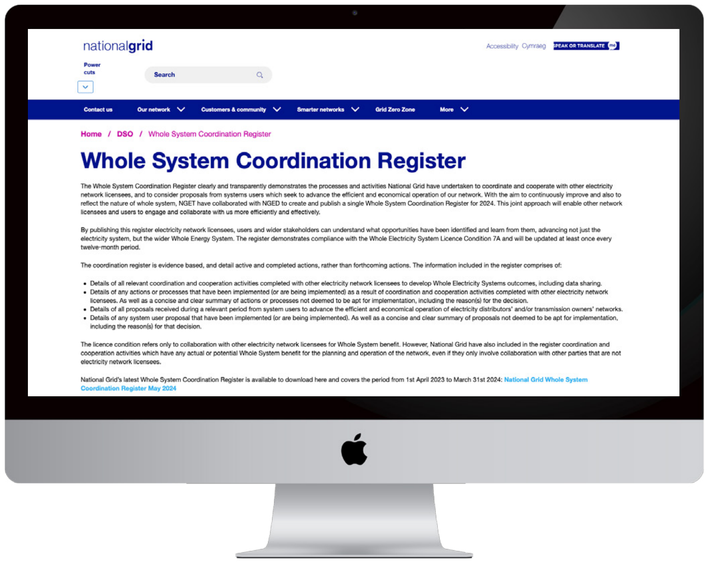
Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

A smart and flexible network

1.39 Our latest Whole System Coordination Register was published in May 2024 and covers the period 1 April 2023 to 31 March 2024. The register transparently demonstrates the processes and activities we have taken to coordinate with others to advance the efficient and economical operation of our network.

Whilst Ofgem only require us to publish details of our collaboration with other network licensees, we have included any activities that have any actual, or potential, whole system benefit.

The register can be found at the following link: **nationalgrid.co.uk/dso/whole-system-coordination-register**



1.40 We have launched three regional collaboration trials as detailed below.

1) South Wales: 'Future Energy Grids for Wales' and associated decarbonisation projects

As outlined earlier in the report, we have been an active participant of 'Future Energy Grids for Wales' which has enabled us to work collaboratively with gas transmission, electricity transmission, gas and electricity distribution networks and the electricity system operator, to support Welsh Government in setting out its energy strategy.

Alongside this we have supported on the development of 13 LAEPs in the region, working with a broad range of local actors.

We are now actively engaging with the Zemo Partnership to help set a transport decarbonisation strategy for Wales' commercial vehicle sector.

The Zemo Partnership brings together government, industry, and experts with the ultimate aim of accelerating transport to zero emissions.

In addition to this, we are collaborating with the South Wales Industrial Cluster (SWIC), which aims to support large industrial users with their future decarbonisation plans. SWIC aims to help deliver regional industrial decarbonisation as well as challenge and accelerate timescales laid out by UK emissions policies.

2) West of England: Bristol Mission net zero

During 2023/24 we became a project partner for Bristol's 'Mission net zero' where we are helping to create a net zero plan for investment of approximately £1bn to support the energy transition in the West of England.

We are working together with other partners to create a structured process of engagement and capacity building to accelerate the transition and address the three key non-technical barriers of climate finance, consumer engagement and capacity development.

We are especially involved in the delivery of a regional climate investment plan that will carry out energy planning supported by a digital platform, create a strategic plan for climate investment and identify an investment pipeline.

We are working with Bristol City Council, West of England Combined Authority (WECA), Bath and North East Somerset Council (BANES), North Somerset Council, South Gloucestershire Council, Bristol Climate and Nature Partnership (BCNP), Bristol City Leap Partnership, The Centre for Sustainable Energy (CSE), Bristol Energy Network (BEN), Bristol and Bath Regional Capital (BBRC), and Living Places Earth.

3) West Midlands: UK Central Hub

We have been working collaboratively with the UK Central Hub – a 1,300 hectare mixed-use commercial site in Solihull.

The hub sits at the centre of the UK's transportation network and offers a significant economic growth opportunity for business, leisure, and living, close to Birmingham Airport and the new HS2 connection.

We have been working with industrial users, transport developers, Solihull Council, and West Midlands Combined Authority, to understand the energy infrastructure required to develop the future site.

We've held a series of collaboration sessions with the main parties involved to understand the detail of their future plans.

We've then analysed their data to understand the future forecasted demand in the area and mapped this across our network to understand what energy infrastructure investment is required in the future to support the delivery of their plans.

We will continue to work with these parties and other network operators and developers, in particular, heat network developers, as the plans develop further.

1.41 We will continue to provide further information on how these collaboration projects progress over the course of RIIO-ED2.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Community energy

2.01 With the energy landscape changing rapidly, the scope of Community Energy has also shifted over time and as a result, there is a lack of clarity over its definition. Within NGED, Community Energy has historically been defined as the collective action we are taking to improve how we purchase, manage, and generate energy and reduce demand.

2.02 Recent political changes are driving a renewed focus on Community Energy, with one of GB Energy's (a planned British governmental investment body) three priorities being to "Scale up municipal and community energy" and plans to partner with energy companies, local authorities, and cooperatives to develop 8GWs of small-scale and medium-scale community energy projects.

2.03 We need to pivot our strategy to keep pace with this changing landscape, and work with both government and the various Community Energy bodies to enable the delivery of the Government's ambitious agenda.

2.04 As part of our ED2 submission, NGED committed to the following:

Output 8	Actively support the expansion of green, renewable energy generation and help local communities to decarbonise and lower their bills, by connecting at least 30 community energy groups to the network each year.

2.05 Over the past year NGED has undertaken various activities to support Community Energy groups to ensure that they are not left behind or disadvantaged when seeking entry to new markets. We have focused on increasing awareness, building knowledge and the ability to participate.

2.06 During 2023/24 we held four Community Energy in-person events with support from Regen (a not-for-profit) energy consultancy across our regions and three online events, which were attended by 214 stakeholders.

2.07 In the first year of RIIO-ED2, this activity resulted in only one Community Energy group being connected to our network. NGED's narrow definition of community energy also means that smaller community energy projects, such as the establishment of EV chargers in community car parks, have not been included in our numbers. We recognise that a shift in our approach is required to connect more community energy projects and drive more progress in this increasingly important area. In response to this, we have set up a dedicated Strategic Customer Engagement team which will be resourced with individuals who can engage with all the key community energy stakeholders and focus on providing support in the most valuable areas.

2.08 Over the past year, our activity has not translated into the value we hoped it would, but we are committed to understanding the issues that are preventing Community Energy groups from gaining traction. Our stakeholder engagement to date has resulted in a number of recommendations from event participants:

- ensure that NGED understands community groups and their needs
- clearer and simpler signposting and guidance
- simplify and explain heat maps
- provide data at a scale that is useful
- NGED to advocate strongly for Community Energy
- NGED could support advertising and promoting case studies and examples of good practice.

2.09 From a strategic perspective we recognise the need to:

- increase awareness of community energy
- stimulate demand through greater support and information for community energy projects navigating a complex policy and regulatory landscape
- work with both industry and government bodies to seek their continued support on connections and planning reform.

Output 9	Support a growth in community energy schemes by facilitating their access to available funding streams

2.10 During 2024/25 we will engage with stakeholders to gather further insight. We will then work with both Community Energy England and Community Energy Wales to develop our offering and seek feedback, before validating our approach through further stakeholder engagement. Community Energy England and Community Energy Wales are not-for-profit organisations that advocate for community energy groups.

2.11 During 2023/24 at our Community Energy events and surgeries, as well as within our newsletters, we have kept Community Energy groups and other stakeholders informed about funding that is available. In addition to listing links to helpful resources, examples of funding guidance that has been shared include:

- **Community Energy Fund** – A £10 million fund to help kickstart projects including small-scale wind farms as well as battery storage and rural heat networks. All proposed, designed and owned by local people.
- **Bristol City Leap Community Climate Grants** – A range of funding options from a starting grant of £500 to help test a project idea, to up to £50,000.
- **3D Hub Community Funding** – Community groups in the Birmingham area can apply for up to £10,000 to design and deliver data driven decarbonisation projects.

2.12 Going forward, we will continue to facilitate access to information on possible funding streams where appropriate to do so.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Environment and sustainability

Further detail on all of our environmental targets can be found within NGED's Annual Environment Report (AER) which is published annually on 31st October and can be found on the NGED website at **nationalgrid.co.uk/customers-and-community/environment**

Output 10	Become a net zero organisation by 2043 in line with our validated 1.5ºC science-based target (SBT).

3.01 NGED has committed to becoming a net zero organisation in advance of the UK government's 2050 deadline by setting science-based targets (SBTs). A carbon emissions target is defined as science-based if it is in line with reductions needed to keep the global temperature increase below 2ºC above pre-industrial temperatures. We have engaged with the SBT initiative and had our more ambitious 1.5 ºC SBT officially verified at an NGED level. We are committed to reducing the impact on the environment of our operational activities.

3.02 Our target of becoming a net zero organisation by 2043 is specifically related to scope 1 and 2 carbon emissions:

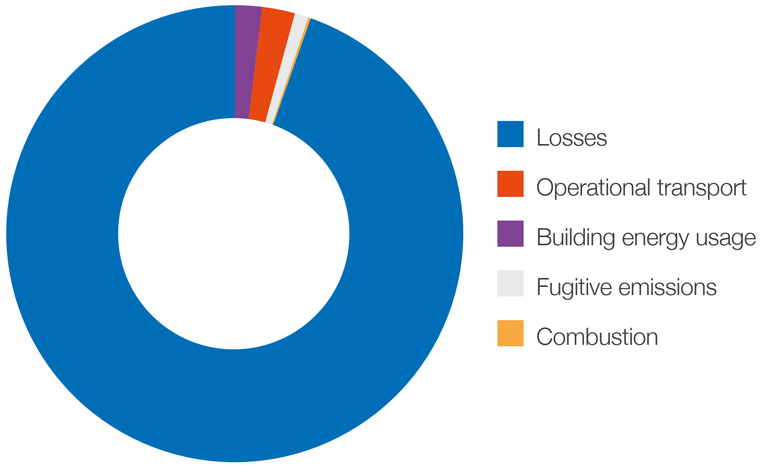
Scope 1 Direct emissions from owned or controlled sources	• building energy use – gas • operational transport (road/rail/air/sea) • fugitive emissions (SF_6) • fuel combustion
Scope 2 Indirect emissions from the generation of purchased electricity	• building energy use – electricity • substation energy use* – electricity • telecoms energy use* – electricity • technical network losses (losses)

*Please note that in data provided below Substation energy use and Telecoms energy use are a subset of Building Energy Use data

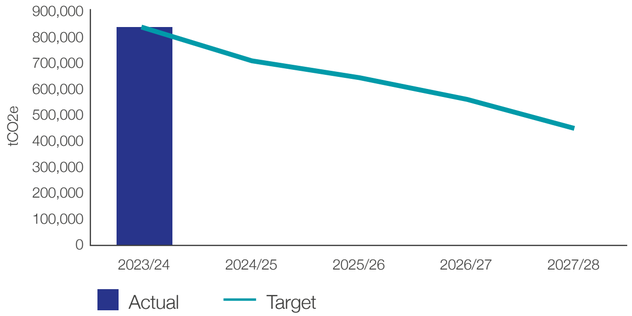
3.03 To support our 2043 target we have established a pathway with annual targets for each year of RIIO-ED2 and we have met our in year targets for 2023/24. A significant proportion of our carbon emissions relate to technical network losses (the losses associated with power flowing through the network), and we therefore show performance both including and excluding losses to allow a more detailed understanding of performance for smaller emissions categories. Our carbon emissions (referred to as our Business Carbon Footprint) are measured and reported using equivalent tonnes of carbon dioxide (tCO2e).

3.04 Since 2022/23 we have achieved reductions in overall carbon emissions by reducing electricity usage in our buildings, other building energy use (such as gas), SF_6 emissions and fuel combustion.

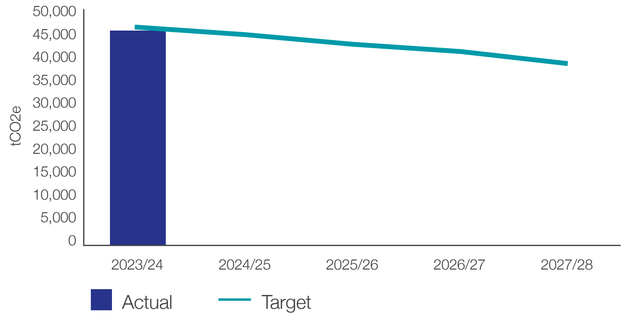
SBT emission types (Including Losses)



SBT performance (including losses)



SBT performance (excluding losses)



Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Environment and sustainability

Output 11	Avoid damage to the environment by reducing the volume of leakage from fluid filled cables by 50% by 2028 and replacing the worst leaking circuits with non-oil alternatives putting NGED on target to remove all oil-filled cables by 2060.

3.05 Some older types of higher voltage cables contain oil based fluids to assist in the insulation of the cables. These cables sometimes leak, either as a result of third party damage, age related degradation, or ground movements. New cable designs do not use this technology so the problems associated with these cables will reduce over time as the populations are reduced through replacement.

3.06 To minimise environmental damage we aim to ensure that:

- fluid levels in all our cables are monitored remotely, loss of pressure triggers alarms within our control centres. This allows us to react quickly to a fluid leak event
- leaks are located quickly by using perfluorocarbon tracer (PFT) chemical. This is incorporated into the fluid and if a leak occurs can be readily detected above ground to pinpoint leaks quickly and to speed up the repair process
- cables with a history of high leak rates are selected for replacement.

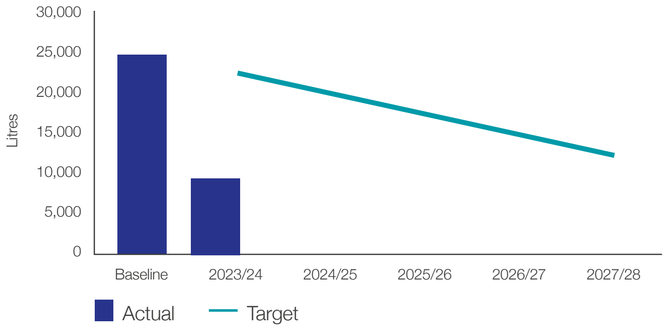
Replacing poor condition fluid filled cable

3.07 During RIIO-ED2 we have targeted the removal of 90km of the worst leaking circuits. In 2023/24 we decommissioned a total of 4.75km of fluid filled cables, 99% of which were condition related removals. We continue to assess our population of fluid filled cables and the sequencing of removals for RIIO-ED2. We are currently in line with our internal work plan.

Leakage performance

3.08 The chart below shows the volume of oil leaked from fluid cables in 2023/24.

FFC oil leakage (litres)



3.09 The volume of oil leaked from fluid filled cables during 2023/24 is significantly less than the baseline period (3-year average of performance for 2019/20 to 2021/22) and we have therefore achieved NGED targets for the first year of RIIO-ED2, improving leakage from our baseline by 62%. Each licence area has achieved their individual in year targets. Increased used of PFT tagging, and improved leak detection, have enabled quick resolution when cables leaked.

3.10 Increased used of PFT tagging, and improved leak detection, have enabled quick resolution when cables leaked.

3.11 Increased temperature differentials over the course of the year place additional stress on fluid filled cables which can lead to increased failure rates. It should be noted that continuous high temperatures cause the ground to warm up reducing its capability to transfer heat away from loaded cables, potentially causing them to overheat and fail. Our continued programme of replacement will aim to ensure that the impact of climatic changes are mitigated.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Environment and sustainability

Output 12	Significantly reduce our impact on climate change by delivering a 20% reduction in SF_6 losses and drive industry partners to develop technological alternatives to reduce overall volumes of SF_6 on the system.

3.12 SF_6 gas is used throughout the industry as a way of insulating switchgear. Although it provides many benefits, it is a potent greenhouse gas.

3.13 An international ban on installing new SF_6 switchgear is pending, and in anticipation of this change, NGED is working closely with manufacturers in the development of SF_6 alternatives to ensure equipment meets operational safety requirements in the UK. In addition, where an existing SF_6 asset replacement is required, we replace with a lower SF_6 volume unit, lowering the overall SF_6 bank.

3.14 We have engaged with all major developers of SF_6 free apparatus and offered to sponsor a number of non SF_6 products through the ENA Notice of Conformity process (NoC) which aids those manufacturers selling their devices to any UK DNO, and potentially others who also follow the UK related technical specifications.

3.15 Following a successful trial in 2021/22 we have continued with our installation of non SF_6 145kV Live Tank Circuit Breakers and now have seven active units, with an eighth ready for installation. We have orders in place for a significant number of additional units to be installed over the course of RIIO-ED2.

3.16 For lower voltage equipment SF_6 free alternatives are in development and this includes equipment that we have in high volumes on the network, such as ring main units. It is anticipated that these products will be available for trial from 2025 onwards.

3.17 SF_6 leaks are identified by either a low gas alarm being triggered via control systems or from a low gas reading on a gauge being identified during a switching operation or a routine substation inspection. When a leak becomes apparent the source of the leak is located so that a strategy can be developed to manage the situation, taking into account the potential for repairs and the lead times for replacement switchgear.

3.18 The rate of SF6 leakage from the network has improved since targets were set for RIIO-ED2. The baseline for performance is based on performance in 2019/20 and we have achieved NGED targets for the first year of RIIO-ED2, as shown below.

SF_6 leakage rate (%)

3.19 The exception is in South Wales, where targets have been exceeded for 2023/24. Within this region, we have experienced some issues in relation to obtaining spare parts and technical assistance from the manufacturer. We are in the process of resolving these issues and it is anticipated that overall progress for RIIO-ED2 will not be impacted.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Environment and sustainability

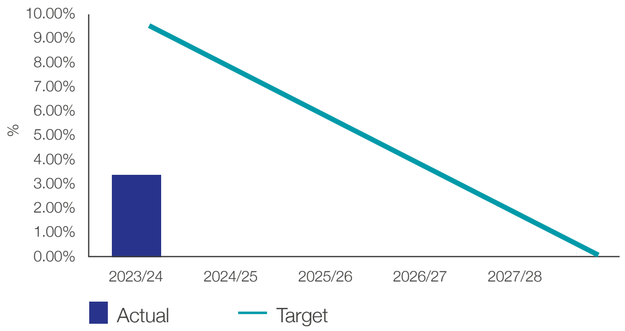
Output 13	Significantly reduce the environmental impact of our operations by achieving zero waste to landfill by 2028 (excluding hazardous waste) and delivering an overall 30% reduction in tonnage of waste produced.

3.20 NGED's business activities inevitably create a number of waste streams. This includes metal from overhead lines, cables and redundant switchgear; wood from wooden poles; packaging from new components; paper from offices and various forms of plastic. NGED has, for a number of years, segregated and recycled waste, wherever possible, to limit the amount being sent to landfill.

3.21 In order to achieve zero waste to landfill by 2028 (excluding hazardous waste) we have continued to work closely with our waste contractors to ensure that wherever possible waste streams have been diverted from landfill. In partnership with the wider National Grid Group we take action to address packaging issues, recycling rates and the availability of recycled materials with suppliers and manufacturers, using the procurement process to improve approach. One example of activity in this area has been action to tackle single use plastics – we have removed plastic drinks stirrers and cutlery from NGED locations, a simple solution that has contributed to our overall improvement.

3.22 The successful impact of our varied activities can be seen below.

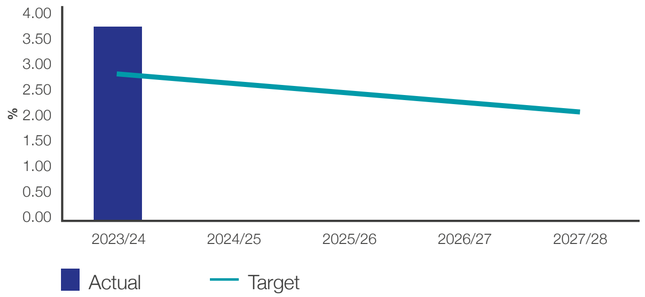
Percentage of waste to landfill



3.23 Only 3.48% of our total waste ends up in landfill. Our targets for RIIO-ED2 are based on our performance in 2019/20 when 11.36% of waste was sent to landfill, we have therefore already achieved a significant improvement as a result of our recycling activities. A significant proportion of the remaining waste that goes to landfill is currently from activity in our South West DNO and we therefore continue to work very closely with our waste contractors for this region in order to improve performance in line with our other licence areas.

3.24 The tonnage of waste produced annually varies depending on the amount of work being carried out and we therefore calculate improvements by calculating tonnage of waste as a proportion of annual turnover. Targets are based on the baseline year of 2019/20. Our performance can be seen below.

Percentage of tonnage of waste per £m turnover



3.25 Whilst we are taking positive steps to reduce the amount of waste that we send to landfill we are producing greater amounts of waste in comparison to our baseline year of 19/20. We are focussed on reducing our overall tonnage of waste as a proportion of turnover.

3.26 We are in the process of re-tendering for our waste contractors. We have made clear our commitment to reducing our overall tonnage of waste and will include this requirement as part of the tender process. We continue to work with our procurement teams to address issues such as minimising the waste from packaging of materials and the potential for take-back schemes from our suppliers.

Output 14	Improve visual amenity by removing at least 50km of overhead lines in Areas of Outstanding Natural Beauty and National Parks

3.27 NGED operates 89,000km of overhead lines predominantly in rural locations. Whilst overhead lines are widely accepted as being part of the countryside, there are a number of National Parks and Areas of Outstanding Natural Beauty (AONBs) across the geographical footprint containing iconic sites where the removal of NGED overhead lines would improve the visual amenity.

3.28 The main method of improving visual amenity, whilst maintaining supplies, is to replace the overhead lines with underground cables. Following stakeholder engagement, NGED committed to undergrounding 50km of overhead line during RIIO-ED2 by working with representatives from AONBs and National Parks.

3.29 Each licence area has a steering group consisting of NGED staff and representatives from AONBs and National Parks. These groups are responsible for identifying projects and prioritising where the work will take place. We provide information and appropriate assistance to stakeholders to help them in scheme selection, including budget costing and feasibility assessments. The acceptance and delivery of projects is dependent on the views of the steering group and the timescales to develop and implement schemes can vary.

3.30 During 2023/24 we have undergrounded 4.35km of overhead lines in AONBs as part of this initiative.

3.31 In order to maximise delivery against our target of undergrounding 50km for RIIO-ED2 as a whole we are reviewing internal processes. This includes improving reporting mechanisms so we can easily review project pipelines and understand where potential delays are impacting on delivery, and aiding communication between our Wayleaves teams, external Steering Groups and Field Operations. We are committed to amending processes if any common issues become apparent as a result of our review.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Environment and sustainability

Case Study

Cranham Common AONB

Cranham Common is part of the Cotswolds Area of Outstanding Natural Beauty, the largest AONB in England and Wales. Cranham is grassland on limestone soil, with rich habitats supporting a variety of flora and fauna.

The site is designated as a Site of Special Scientific Interest (SSSI) recognising its environmental importance and is leased to Natural England who have overall responsibility for the site.

The work included the permanent installation of two ground mounted substations, the installation of 1.6km of underground cables and the removal of just over 1km of overhead lines.

The installation of new ground mounted substations meant that obtaining permissions was complex. As the land fell within a SSSI we had a very specific window of when work could be undertaken. The project has significantly enhanced the landscape and views of the Common.

Output 15	Achieve a 10% net gain in biodiversity (in line with nationally recognised assessment tools) for new major projects and for selected primary and grid substation sites.

3.32 Biodiversity Net Gain (BNG) legislation came into effect in England in February 2024 as a key component of the Environment Act. The legislation states that major development projects must have a positive impact on biodiversity. All developments should now contribute positively to the natural environment, leaving habitats in a measurably better condition post-development.

3.33 A survey is undertaken before development, using the statutory biodiversity metric, to explore options to achieve 10% biodiversity net gain. If the 10% net gain cannot be achieved by creating and enhancing on-site habitats, developers can either make off-site biodiversity gains on their own land outside the development site, or buy off-site biodiversity units on the market.

3.34 Infrastructure developers are required to maintain the habitats created or enhanced for a minimum of 30 years in order to achieve the target condition.

3.35 We are fully committed to protecting the natural environment and have put in place guidance for managers in order to ensure that we are compliant with the new legislation. There are 20 active NGED Major Project sites where a BNG obligation is now in place. Surveys have been undertaken and plans have been established for the required activity.

3.36 In line with our commitment, we also continue to go beyond our statutory obligations and have identified an additional 40 primary and grid substation sites across our four licence areas where Biodiversity Management Plans will also be implemented.

3.37 We have undertaken baseline biodiversity surveys and are collaborating with ecological consultants, vegetation management and grounds maintenance contractors to put in place local habitat management arrangements and biodiversity enhancements to enable a minimum on-site biodiversity net gain of 10%.

3.38 We are implementing a range of activities to improve biodiversity, such as modifying our existing cutting regimes to reduce the frequency and intensity of grass cutting.

3.39 We recognise the statutory requirement to maintain habitats for a minimum of 30 years and the selected additional 40 sites with Biodiversity Management Plans described above will have conservation covenants, secured for 30 years. A conservation covenant is an agreement that sets out obligations in respect of the land which will be legally binding not only on the landowner but on subsequent owners of the land.

3.40 We will report progress in biodiversity net gain over the course of RIIO-ED2 (within both this report and the Annual Environment Report) demonstrating the impact of our activities on the biodiversity of our sites.

3.41 We are committed to establishing biodiversity good practice across our regions and will identify a further 40 sites for biodiversity surveys in 2024/25.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Innovation

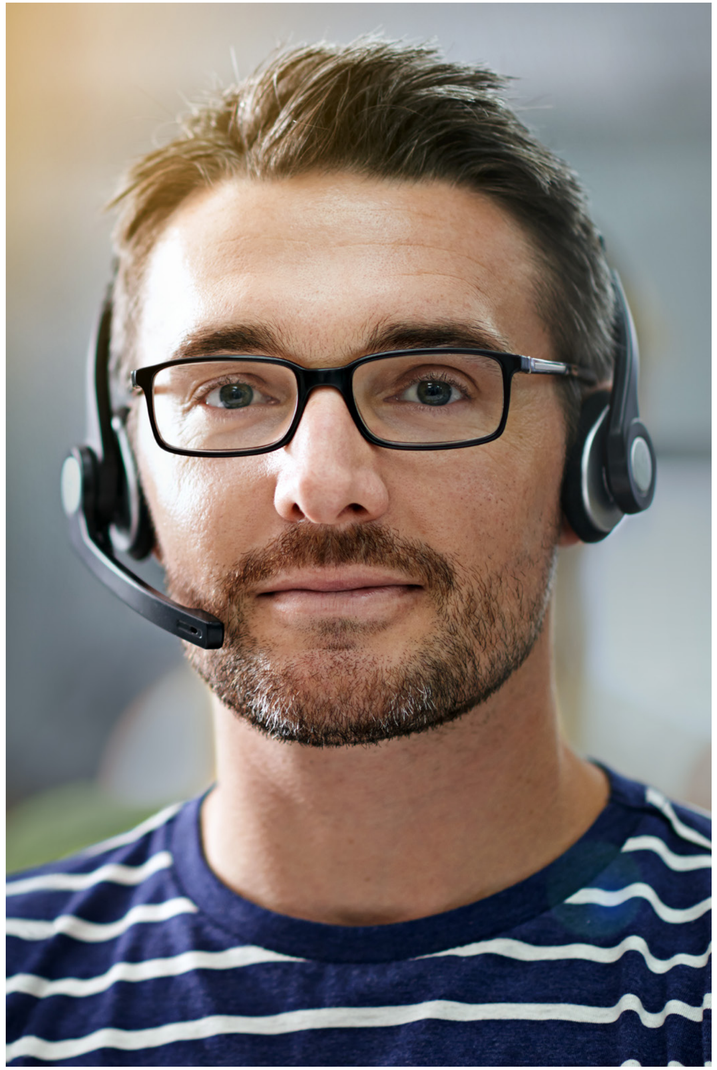
Output 16	Keep bills for customers low by delivering a minimum stretch efficiency saving of £95 million through RIIO-ED2 (on top of £723 million of efficiencies already included in the plan) by utilising innovation to improve our processes.

4.01 With ongoing pressures for consumers, and enduring volatility in supply chains, we understand that driving efficiency and value for money are more important than ever. That's why we took the decision to establish an Efficiency Delivery change programme with the aim of delivering a minimum stretch efficiency saving of £95 million throughout RIIO-ED2.

4.02 To date we have achieved savings of £5.5m for customers as a result of introducing procurement efficiencies and maximising on the synergies available to us as part of the wider National Grid group.

4.03 We anticipate the delivery of further significant savings as a result of the change programme's work in the following focus areas:

Call Centres Enhancing triage processes between contact centres and dispatch activities, including end to end processes for connections and fault response. Enhancing digital services.	**Execution of processes** Creation of standardised end to end processes to improve planning and scheduling of work with clearer roles and responsibilities in execution.
Contracting Contractor monitoring and making changes to vegetation management and dig and lay contracts.	**Design and project management** Streamlining work processes and planning activities, including revenue charging for design work.
Performance management Developing clear line of sight on performance that extends throughout the organisation.	**Procurement** Implement synergies from National Grid Group and improve procurement processes.
Asset management and DSO Implement reinforcement and proactive asset replacement programme, to reduce faults.	**Fault response** Continued use of LV monitors and optimising response to call-outs and triage.



Case Study

The faults response trial

An example of the work being undertaken by the Efficiency Delivery change programme is the introduction of a faults response trial. This involved trialling the impact of introducing a dedicated faults team (one trial per DNO licence area), including a Team Manager and office team, with the aim of responding to faults efficiently whilst reducing the disruption to other planned work.

By introducing standardised processes the trial aimed to increase efficiency and predictability. A standard set of KPIs provides the ability to understand and improve performance in relation to response times. Dedicated faults teams are available to undertake in-fill work when schedules allow.

The trial has been a success, with a 19% reduction in fault costs over the trial period. The approach will now be rolled out across our regions.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Innovation

Output 17	Enhance access to data that is tailored to the individual needs of our customers, by making 60% of NGED's network data available via an interactive Application Programming Interface.

4.04 NGED recognises that as networks become smarter there are opportunities for third parties to make use of network data for their own purposes or to develop new ways of managing the network.

4.05 An interactive Application Programming Interface (API) can simplify the process and reduce the costs of data sharing, and ensure consistency in how data is processed and shared.

4.06 In advance of RIIO-ED2 NGED worked with the Energy Systems Catapult (ESC), an independent research and technology organisation, to understand the value of open data to stakeholders. The research conducted by the ESC identified some key themes including the importance of making our data platform, the Connected Data Portal, as visible as possible, and providing guidance to users on how to access data via an Application Programming Interface.

4.07 Alongside these requirements we have a responsibility to consider the security of data and to comply with government expectations in relation to this. During 2023/24 we received guidance from the Department for Energy Security and Net Zero (DESNZ) and subsequently implemented user registration, authentication and logging controls for open data and re-triaged all open datasets following publication of data sensitivity guidance from DESNZ.

4.08 Customers are able to request data via our website at the following link **nationalgrid.co.uk/digitalisation-and-data/data-request-form**. Once data is requested our data teams are able to review any security issues in relation to the data request, following best practice guidelines provided by the industry body, the ENA. Most commonly data users have requested data in relation to connections and network assets.

4.09 At present 52% of our network data for substations and circuits is available via an API and we are on track to achieve our target of 60% by the conclusion of RIIO-ED2. In addition to network data, we also publish connections and flexibility datasets and in total 87 open datasets are available.

4.10 Over the remainder of the price control we plan to undertake the following actions in this area:

- analysis of the data requests that we are currently receiving in order to create a priority list of data sets to make accessible via API to ensure that investment levels are appropriate to customer requirements
- publication of surveys on our website to identify any additional data requirements our stakeholders may have
- engage with community energy groups in order to identify their data needs
- investment in additional software to enhance data accessibility
- ensure continuous improvement of data quality
- automate data pipelines to improve data quality
- increase the volume of LV monitor data published via our LV Network Insights platform
- migrate open data to a new cloud hosted data platform to further meet the needs of energy network data consumers.

4.11 Our Connected Data Portal can be found at **https://connecteddata.nationalgrid.co.uk/**

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customers in vulnerable situations

Further detail on our vulnerability targets and performance can be found within NGED's Annual Vulnerability Report (AVR) which was published on 31st July and can be found on the NGED website at **nationalgrid.co.uk/psr**

Output 18	Ensure customers are not left behind in the smart energy transition by offering at least 600,000 Priority Services Register customers a bespoke smart energy action plan each year.

5.01 In 2022/23 NGED worked with the Centre for Sustainable Energy (CSE) to pilot the process of offering Priority Services Register (PSR) customers a Smart Energy Action Plan tailored to their individual circumstances. The pilot enabled us to develop and shape our full-scale offering.

5.02 Our Contact Centre teams use established communication methods, such as telephone calls and written communication, in order to offer a bespoke Smart Energy Action Plan to PSR customers. We are also working with customers and stakeholders to explore how they might engage with us on other channels, such as digital and the website.

5.03 Each plan provides expert guidance and is delivered on our behalf by CSE. We provide two levels of plan depending on customer requirement – introductory and detailed. Both options are designed to help customers benefit from offers immediately available to them as well as providing guidance on the uptake of future LCT services.

5.04 An introductory plan provides tailored advice on improving smart energy capabilities as well as providing advice on one or two smart offers such as smart meters or digital display units.

5.05 A detailed plan includes comprehensive preparatory work completed by an expert advisor and a detailed call with the customer takes place, using a questionnaire to determine the customer's priorities. Subsequent suggested outcomes will relate to a variety of topics such as basic smart controls, smart heating, time of use tariffs, electric vehicles and energy storage.

5.06 When we developed our proposition for Smart Energy Action Plans we envisaged that offers would initially be made through our Contact Centre, however we recognise that customer needs are constantly evolving and so we are working to explore delivery through a variety of communication channels, including digital, to meet all needs. This expanded multi-channel focus has enabled us to reach a much wider audience than our original plans anticipated – and, during 2023/24, we have offered more than a million customers a Smart Energy Action Plan.

Output 19	Support at least 113,000 fuel poor customers to save £60 million on their energy bills over RIIO-ED2.

5.07 During 2023/24 we have supported 23,705 customers to save £23.4m on their energy bills. Our fuel poverty programme is a key focus for our teams and we are proud to be making such great progress and tracking ahead of our commitments for RIIO-ED2.

5.08 Our fuel poverty programme is delivered via our well-established partnership projects, 'Power Up!' and 'Affordable Warmth'. Working with our trusted external partners allows us to address fuel poverty in a cost-effective and strategic way. Our aim is to ensure that customers living in cold homes and/or struggling to afford their energy bills receive tailored support to make long term changes to improve their ability to afford to heat their home.

5.09 Every one of our projects must be capable of delivering specified, established fuel poverty interventions to assist customers, as detailed below.

- **Boiler replacements and heating**
- **Health and wellbeing measures**
- **Energy efficiency measures**
- **Income maximisation (including tariff switching)**
- **Managed referrals to water social tariffs**
- **Gas network support applications and CO monitors**
- **Befriending services**
- **Low Carbon Transition Support**
- **Behavioural changes**

5.10 Traditionally our programme focused solely on fuel poverty but for RIIO-ED2 we have asked our partners to also deliver 'Low Carbon Transition Services' where appropriate. This includes providing customers with advice on the benefits of smart meters and flexible tariffs, grants for solar panels and heat pumps as well as guidance to maximise smart technologies.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customers in vulnerable situations

Further detail on our vulnerability targets and performance can be found within NGED's Annual Vulnerability Report (AVR) which was published on 31st July and can be found on the NGED website at **nationalgrid.co.uk/psr**

Output 20	Expand the reach of the Priority Services Register to at least 75% of total eligible customers and 80% of customers with critical medical dependencies to ensure those in greatest need receive targeted support services. This will include registering at least 50,000 additional "hard-to-reach" customers each year.

5.11 We have established annual targets to ensure that we reach our overall commitment to expand the reach of the PSR to 75% of total eligible customers by the end of RIIO-ED2. To date PSR reach for all licence areas combined is 67.4% and we are on track to achieve our overall target.

5.12 Each year we undertake a significant proactive, targeted advertising campaign promoting the benefits of the PSR driving sign-ups for eligible customers. This is complemented by direct customer communications to existing PSR customers to ensure we have their latest details and that we understand their current needs. Throughout the year we also use social media channels to share resilience advice and promote the register.

5.13 In the first year of ED2 these campaigns have yielded positive results with 14,923 new PSR sign ups as a direct result of our targeted campaign. Of course, the picture is constantly evolving and, as we sign up new customers, our engagement with existing customers also sees inevitable reductions in the register as people no longer require the service.

5.14 As an example, in 2023/24 we developed a new PSR poster/advertising leaflet to share with 1,719 relevant agencies and partners. This enabled partners to either print the poster for notice boards in relevant sites or send it via email to their service users. In the first month since its circulation, we saw over 100 direct hits on our PSR portal, evidenced by a dedicated trackable link. We ensure that the media we provide is available in any format required, ensuring that we support a wide range of additional communication needs – including hearing and/or sight loss. We can provide media in large print, audio and translation into any language.

5.15 We provide comprehensive training for our Contact Centre staff and field staff. All staff have an App on their IT devices (such as iPads) allowing them to access support and sign up customers to the PSR.

5.16 Within the RIIO-ED2 Business Plan, we made a commitment to expand the reach of the PSR to 80% of customers with critical medical dependencies. Our data on customers with a critical medical dependency comes from our partner the Centre for Sustainable Energy and unfortunately, we have been unable to establish the total number of such customers within our regions. We are therefore seeking to ensure that we see year-on-year growth in the number of customers with a critical medical dependency registering on the PSR. During 2023/24 we have seen a 19.4% increase in such customers registering.

5.17 We undertake social indicator mapping to identify areas where outreach projects could make a difference in increasing PSR membership.

5.18 As an example we have launched a pilot scheme with Kidney Care UK to provide support and information in two areas identified by our social indicator mapping as having high levels of deprivation and with a high prevalence of chronic kidney disease.

5.19 The project aims to reach as many as possible of the 61,968 people living with advanced kidney disease in Birmingham and East Lindsey, Lincolnshire. Through the partnership, patients at drop-in clinics at renal units and kidney clinics will be offered fuel poverty support and energy efficiency advice. As well as boosting PSR referrals of patients, Kidney Care UK will provide bespoke training for National Grid field and Contact Centre teams who support customers during power cuts, ensuring they can best understand and support the needs of kidney patients.

5.20 We define hard-to-reach customers as those who we have to proactively make contact with in order to make them aware of our PSR services. This may be via the day-to-day discussions that our contact centre teams have with customers or via liaison with our partner organisations such as those providing fuel poverty support to individuals within our regions.

Hard-to-reach customers can be those who are less likely to self-identify as needing the PSR, those who might be disengaged from the energy sector, and those whose vulnerability might be hidden from traditional service providers such as their energy supplier. During 2023/24 we registered an additional 51,420 hard-to-reach customers on our PSR.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customers in vulnerable situations

5.15 We provide comprehensive training for our Contact Centre staff and field staff. All staff have an App on their IT devices (such as iPads) allowing them to access support and sign up customers to the PSR.

5.16 Within the RIIO-ED2 Business Plan, we made a commitment to expand the reach of the PSR to 80% of customers with critical medical dependencies. Our data on customers with a critical medical dependency comes from our partner the Centre for Sustainable Energy and unfortunately, we have been unable to establish the total number of such customers within our regions. We are therefore seeking to ensure that we see year-on-year growth in the number of customers with a critical medical dependency registering on the PSR. During 2023/24 we have seen a 19.4% increase in such customers registering.

5.17 We undertake social indicator mapping to identify areas where outreach projects could make a difference in increasing PSR membership.

5.18 As an example we have launched a pilot scheme with Kidney Care UK to provide support and information in two areas identified by our social indicator mapping as having high levels of deprivation and with a high prevalence of chronic kidney disease.

5.19 The project aims to reach as many as possible of the 61,968 people living with advanced kidney disease in Birmingham and East Lindsey, Lincolnshire. Through the partnership, patients at drop-in clinics at renal units and kidney clinics will be offered fuel poverty support and energy efficiency advice. As well as boosting PSR referrals of patients, Kidney Care UK will provide bespoke training for National Grid field and Contact Centre teams who support customers during power cuts, ensuring they can best understand and support the needs of kidney patients.

5.20 We define hard-to-reach customers as those who we have to proactively make contact with in order to make them aware of our PSR services. This may be via the day-to-day discussions that our contact centre teams have with customers or via liaison with our partner organisations such as those providing fuel poverty support to individuals within our regions. Hard-to-reach customers can be those who are less likely to self-identify as needing the PSR, those who might be disengaged from the energy sector, and those whose vulnerability might be hidden from traditional service providers such as their energy supplier. During 2023/24 we registered an additional 51,420 hard-to-reach customers on our PSR.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customers in vulnerable situations

Output 21	Achieve a one-stop shop service so customers only have to join the Priority Services Register once to be registered automatically with their energy, water, gas and telecommunications suppliers.

5.21 We recognise that for customers in vulnerable circumstances, or experiencing challenging life events, dealing with multiple different utility companies can cause confusion and frustration. We are therefore committed to increasing secure data sharing between utility providers. Traditionally PSR data has only been shared between electricity networks and energy suppliers.

5.22 We have now established secure data sharing agreements with all participating water companies in our operating area, which allows us to send and receive monthly encrypted data so that our PSR customers can also receive support from their water provider in a water emergency and vice versa. We have also previously introduced secure data sharing with oxygen providers, Fire and Rescue Services and local authorities.

5.23 During 2023/24 NGED securely sent 195,217 records to water companies and received 154,665 records.

5.24 Gas Distribution Networks (GDNs) continue to access PSR data during a gas outage, using data from energy suppliers. In addition, NGED works with GDNs where possible during gas incidents to provide up-to-date PSR information in a timely manner.

5.25 Our approach to the safe and secure sharing of data is a long-term commitment and the next stage of our approach is to establish processes for data sharing with telecommunication suppliers.

Output 22	Maintain high quality data to allow us to deliver bespoke support to customers in vulnerable situations by proactively contacting over two million Priority Services Register customers once every two years to remind them of our services and update their records (with 60% via direct telephone call).

5.26 Our PSR now holds details of 2.3 million customers, an increase of 28% in the last five years. Ensuring that we hold an accurate and up-to-date picture of the needs of those customers is fundamental to ensure that we provide the best support possible.

5.27 We continue to review the service that we provide to our PSR customers and as a result during 2023/24 we increased our dedicated PSR team to 24 colleagues across two Contact Centres. As our PSR continues to grow we remain committed to ensuring that our teams and service to our customers is the best it can be.

5.28 We recognise that customer requirements are constantly evolving, and the ways in which they want to communicate and engage with us are changing too. Whilst we always offer telephone support for those customers who want to speak to someone, we are seeing a significant rise in the use of digital channels, with more customers opting for contact through text, web chat or social media. We are therefore trialing live digital engagement with PSR customers and exploring a wider channel strategy to ensure customers can contact us in a way that works best for them.

As a result, after consultation with our Customer Panel, we will be updating our commitment to make 60 percent of our PSR data checks via direct telephone call and instead ensure that we are utilising the channels that customers tell us they want to use. We will continue to track and monitor all our communication methods with our customers and ensure the heart of our commitment – to communicate and update data – is fulfilled.

5.29 We seek to proactively contact over 50% of registered PSR customers each year to ensure that every customer is contacted once every two years. During 2023/24 57% of PSR customers were contacted to verify their data, through a variety of channels.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Social contract

Output 23	Support and add significant value to our local communities via a "Community Matters" social initiative associated with the smart energy transition, vulnerability, environment and sustainability. This will include a shareholder-funded annual £1 million community support fund and 1,900 volunteer days per year for NGED staff to support local causes.

6.01 NGED established the Community Matters Fund as part of our response to Covid-19 in 2020, donating £1million to benefit individuals affected by the pandemic. As part of our RIIO-ED2 Business Plan we pledged to continue long-term and impactful regional support for the communities we serve via grants to grassroots organisations, funded entirely by shareholders.

6.02 We have established a process whereby funding is split over multiple application phases during the year. We work with Localgiving, a specialist facilitator providing digital services to charities, who host and promote the funding applications and provide impartial application scoring and assessment.

6.03 We have worked with our Customer Panel to identify core areas we will support via the Community Matters Fund across areas of support that are a priority for our customers and communities. These priority areas have been identified as:

- supporting customer vulnerability
- public safety
- STEM and education
- environment
- diversity.

6.04 Funding is awarded in phases throughout the year to ensure that a range of societal challenges are addressed, for 2023/24 our funding themes were:

- green spaces and biodiversity
- active communities
- fuel poverty.

6.05 In winter 2023/24, recognising the significant cost-of-living challenges facing our communities, National Grid plc made an additional £5m available through the Community Matters Fund to help tackle the challenges of fuel poverty across our region.

The fund provided grants to 715 grassroots organisations, helping people to save energy, keep their homes warm and access warm hubs. This benefited an estimated 272,000 people. In total, we have contributed over £5.9million via the fund during 2023/24, benefiting 937 organisations and supporting an estimated 360,000 beneficiaries. Further detail on our activities can be found within our **Social Contract** which is available on our website at **nationalgrid.co.uk/about-us/our-social-contract**

6.06 Volunteering is another important way in which our company and our colleagues engage with and support the communities we serve. Volunteering fosters positive relationships, whilst providing social, educational, economic and environmental benefits to local communities. We also recognise that volunteering provides a range of benefits to our teams – from personal wellbeing and team building opportunities to providing the chance for individuals to acquire new skills and knowledge.

6.07 During 2023/24 our colleagues have undertaken 832 volunteer days. Whilst below our annual target of 1,900 days we have now implemented our new volunteering system that allows staff to quickly and easily identify local volunteering opportunities that they can sign up for directly online. The system was built, tested and launched in year one of ED2 and so we are confident that we can achieve our target in future years.

Case Study

Heart of England Forest, Tree Guard maintenance

The Heart of England Forest is a charity helping to reverse woodland decline by creating and conserving a huge broadleaf forest for the benefit of the environment, wildlife, and people. Since inception, Heart of England have planted more than 2 million trees, making a significant positive environmental impact.

Volunteers assist with the maintenance of tree guards in areas planted with new trees, replacing damaged guards in order to ensure that saplings are protected from wildlife. After a morning of activity volunteers then have the opportunity for a guided walk through the forest with an experienced ranger, learning about biodiversity and the work of the Heart of England Forest.

Through our partnership with the Heart of England Forest, NGED volunteers have the opportunity to be active in the communities we serve and to build a better understanding of our environmental commitments.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Social contract

Output 24	Deliver enduring long-term support to our communities by publishing an updated Social Contract and performance report every year, and maintain our prime Environmental, Social and Governance rating.

6.08 Our Social Contract sets out how we do business in a way that actively benefits our region and the people we serve, both now and well into the future. We have committed to listening actively to our communities and colleagues, acting with integrity and contributing positive, locally tailored solutions to the challenges they face.

6.09 We publish an updated Social Contract on an annual basis together with an integrated performance report. The Social Contract can be found at the following link: **nationalgrid.co.uk/about-us/our-social-contract**

6.10 The Social Contract provides further information on how we support:

- **our customers and communities** – through activities such as our Community Matters fund and volunteering.
- **our people** – through schemes such as the launch of a new mental wellbeing app for colleagues.
- **our environment** – through activities such as tree planting in the Heart of England Forest.

6.11 Our Environmental, Social, and Governance rating is reassessed on an annual basis. As part of National Grid Group our rating was updated in July 2023 and remains a prime rating.

Output 25	Build decarbonised communities and local energy schemes by providing £540,000 shareholder-funded support per year to install solar PV on schools and community buildings in areas of high economic deprivation.

6.12 NGED recognises that to achieve net zero, decarbonisation has to start at a local level, with a decentralised energy system that transforms the way that we generate, store, and use electricity. As part of the process of supporting communities to navigate the rapidly changing energy landscape we have committed to supporting schools and community buildings in areas of high economic deprivation to adopt solar PV at their locations.

6.13 An initial pilot for this output was conducted in February 2023 with the installation of solar PV at a school within our Gloucestershire region. The pilot identified that to successfully deliver a solar installation that provided meaningful benefits, NGED should consider providing grant funding (with an increased budget per site) to enable larger installations that maximise roof space and energy consumption. To deliver this effectively and at scale, NGED therefore made a decision to work with partners rather than directly with individual schools.

6.14 Working in collaboration with Solar for Schools, NGED is now providing grant funding for solar panel installations. Solar for Schools provides a turnkey service for the design, installation and maintenance of solar panels, as well as offering funding options for schools who don't want to invest capital upfront. As a result, our grant funding is helping to unlock projects for schools that may otherwise not be able to install solar panels, and ensuring projects are maximised to deliver the best carbon and energy bill savings for schools.

6.15 Alongside ongoing maintenance of the solar panels, Solar for Schools provide STEM education around topics such as renewable generation and net zero. As part of our grant criteria, funding is targeted at schools in areas of high economic deprivation.

6.16 During 2023/24 we agreed to fund £257,000 to projects installing solar PV. Whilst this is below our annual target we are confident that our new approach to grant funding and partnership working, rather than direct project management and installation, will allow us to deliver our target during the ED2 period. We have re-profiled delivery over the remaining four years of RIIO-ED2 to take account of this initial project set up period and will invest a total of £2.7m by the close of RIIO-ED2.

6.17 A case study of the type of work that we are supporting can be found within our Social Contract.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customer service

Output 26	Deliver exceptional service levels by achieving an overall average customer satisfaction of 93% or higher by the end of RIIO-ED2, with separate reporting for emerging technology customers.

7.01 Customer service is assessed using the Broad Measure of Customer Satisfaction (BMCS), an Ofgem incentive mechanism that includes a customer satisfaction survey covering three types of interaction:

- customers requesting a connection (minor connections only)
- customers experiencing a supply interruption
- customers making a general enquiry.

7.02 During 2023/24 our licence areas achieved a combined score of 8.97 out of 10, equivalent to 89.7% customer satisfaction. This score reflects the excellent customer service provided by our teams and we will continue to roll out our new Customer Excellence Strategy to help us drive even higher levels of service in order to achieve the challenging target of 93% or higher by the end of RIIO-ED2.

7.03 We have analysed BMCS trends over the last 5 years in order to understand the areas where improvement is possible, particularly in connections and unplanned interruptions. This work has identified a number of actions which are now in progress. These include:

- development of a Connections "playbook" that will be used to ensure that a best practice approach to low voltage connections and service alterations is adopted consistently across all our depots. As well as ensuring use of a consistent process, implementation will include a focus on training, measurement, insight analysis, resource planning and customer communications. Once implemented, this will provide a solid foundation from which further improvements can be made, including some of those identified in the customer journey work mentioned below.
- improvements to the quality and extent of customer service training provided to our Field Operations and Contact Centre colleagues. This work was initiated in the first quarter of 2024 and will continue to be developed and expanded over the course of RIIO-ED2.
- improvements to the way we communicate to customers during faults, particularly those who receive our automated messaging service. We have observed that satisfaction of this customer group has been in relative decline and have identified a number of actions that we need to take to improve this experience, including both processes and systems.
- improvements to the accuracy of the information that we provide during unplanned interruptions. For customers experiencing a fault, we recognise the importance of providing as accurate information as possible to customers regarding their likely restoration time. We have identified a number of steps in our Contact Centres, Field Operations and digital service offerings which will improve the accuracy of the information we provide, and the way that information is communicated.
- introduction of a team to analyse trends in our current customer satisfaction data, using a weekly breakdown of BMCS results to identify any actions that we can take to improve performance. One theme that has been identified is that there is an increasing customer expectation for our Contact Centre staff to have more technical information available to resolve customer queries. This has led us to update the training and development that we provide our staff and to introduce new procedures for coaching and feedback. We are implementing a broader customer focused transformation programme, focused on improving our approach to customer experience management with associated governance and accountabilities, creating new organisational capabilities and aiding broader cultural change.

7.04 As well as the detailed analysis of BMCS results, we have refreshed our Customer Excellence Strategy and undertaken detailed customer segmentation analysis and journey mapping – all with a focus on better understanding our customers' needs and expectations. We have initially focussed on four key areas where we interact with customers – faults, planned interruptions, small demand connections and EV Charger connections. Two further work streams have also recently commenced for PSR customers and Complaints and Claims (see output 30).

7.05 The initial stage of the Customer Journey project has been to map 'As Is', identifying the touchpoints we have with customers and using this information to develop conceptual ideas that may benefit customers and business efficiency.

Case Study - Customer Journey

Faults

- Within the theme of 'Transparent Restoration' we developed a concept to provide clear completion confirmation for customers. This involved reviewing the processes we already follow for providing close out calls and texts. We identified that customer expectations have changed, with higher demand for understanding the reason for outages. We have therefore implemented changes to the way that we present this information. Customer insight has proved extremely valuable in this area to determine the level of detail required. We conducted a pilot and introduced change as a result, with continued analysis in place to ensure that this can be updated on an ongoing basis.
- As part of the 'One Team' proposition we developed a concept to deliver 'Holistic Customer Experience' training for our field teams. We initiated this training programme within the first quarter of 2024. The programme is region led and therefore tailored to individual needs across our areas.
- As part of the 'Data Driven Excellence' proposition we have explored a concept of 'Active Feedback Refinement'. As part of closeout calls with customers, we have been actively asking customers what, if anything, they would have liked us to have done differently. In particular, this has focussed on estimated time of restoration and utilising this feedback to build a strategy to provide greater accuracy and improve the customer experience.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customer service

7.06 We have been independently assessed as fully compliant with the British Standards Institution (BSI) Standard for Inclusive Service Provision (BS18477) annually for the last eleven years, after being the first UK company to achieve this.

7.07 Capturing customer satisfaction scores for emerging technology customers (via the BMCS) is not required by Ofgem until year two of the price control. We have therefore taken steps to ensure that our systems can identify the relevant customer groups for reporting to be enabled within 2024/25.

Output 27	Ensure a speedy telephone response to customers by answering calls within an average of four seconds and maintain an abandoned call rate of less than 1% within our UK-based in-region contact centres.

7.08 Ensuring customers can speak to someone is an essential part of good customer service. We understand that customers can be frustrated when their calls are not answered quickly, and so we continue to focus on answering calls quickly.

7.09 2023/24 presented a series of challenges for network resilience with a higher than average number of storms. We saw 13 named storms during this time period. In this context, our average call answering times were impacted, with an average response time of 4.8 seconds over the year.

7.10 In particular response times in December 2023 were more than double our normal average, when our regions were impacted by three separate named storms, leading to above average call volumes.

7.11 As part of our ongoing drive to improve customer service we have evolved our call routing technology to allow consolidation of contact centre staff, enabling a one team approach across our two contact centre sites (based in Castle Donington and Cardiff). Calls are automatically routed to the first available advisor, regardless of location. This has improved call answering times for our smaller contact centre.

7.12 We have also prioritised the digitalisation of our technology and are in the process of introducing Amazon Connect as our strategic call routing solution. This means that we will be able to respond to contact from a variety of channels - including social media, inbound voice calls and webchat - in one system, in a consistent way. At present we use a variety of systems for a variety of channels. We expect to see a range of efficiencies as a result of consolidating the systems and processes that we use.

7.13 We recognise that customers value the opportunity to contact us in a variety of different ways and we therefore continue to develop alternative contact methods such as social media.

7.14 We have evolved our auto-dialling capability to include retry and alternative numbers, enabling us to make contact with our customers quickly and efficiently. The introduction of Amazon Connect will support this initiative further.

7.15 Abandoned calls arise when customers decide to hang up before they speak to a call taker. This typically arises when customers are being kept on hold for a long time. NGED's approach of answering calls quickly results in very few abandoned calls. In 2023/24, only 0.43% of fault and emergency calls were abandoned, beating our target of less than 1%.

Output 28	Ensure a speedy social media response to customers by replying to enquiries within an average of five minutes and webchats in an average of less than a minute, 24 hours a day.

7.16 NGED uses a variety of methods to ensure that communication remains effective and appropriate for our broad customer base. Social media and webchat functionality enables customers to communicate with us in a way and at a time that suits them with NGED advisors available 24 hours a day online.

7.17 As with telephone calls, we respond to customers quickly; during 2023/24 our average time to respond to social media enquiries was 3 minutes and 48 seconds whilst the average time to respond to webchat enquiries was 42 seconds.

7.18 In 2024/25 we will seek to bolster our response to social media by taking an omnichannel approach – using one system to respond to all queries regardless of the source. We are also in the process of developing a digital roadmap which seeks to utilise new technology, such as artificial intelligence (AI), to respond to customer queries. This will allow us to continue to respond to customers quickly, but in a way which is efficient and cost effective.

Output 29	Provide greater insight on our planned work activities and interruptions on our network by creating an online viewer.

7.19 We recognise that customers value timely and accurate information in relation to power cuts, for both planned and unplanned outages.

7.20 During RIIO-ED1 we introduced a number of channels to make it easy for customers to access up-to-date information for unplanned outages including our online power cut map and via NGED smart device apps. We aim to provide customers with a similar standard of accessible data for planned outages during the course of RIIO-ED2.

7.21 During 2023/24 we have introduced new pages on our website for planned outages. When a customer receives notification of an outage in advance the information letter contains a QR code which they can use to link to a more detailed web page providing information on the timeframe of the outage, the reason for the outage and detailed information on the affected areas. Customers are then offered the opportunity to sign up for SMS updates and to contact us if they have any extra support needs during the outage. The page also provides links to our guidance for what to do during a power cut and how to prepare for a planned outage.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Customer service

7.22 We are in the process of planning further website developments for customers seeking information on planned outages. Initially we envisaged the development of a map interface similar to that of our Power Cut map but customer feedback has suggested that a more diverse approach may be required. Customers have flagged additional information needs that could be combined with planned outage data - such as information on roadworks associated with our activities and planned investment information at a local level. During 2024/25 we will continue to liaise with stakeholders in order to consider the best way to provide information for our customers.

Output 30	When things go wrong, ensure we put things right very quickly, by resolving at least 90% of complaints within one day and 99% of complaints within 31 days.

7.23 We always endeavour to get things right first time, every time. Of course that isn't always possible and challenges can sometimes arise. When complaints are received they are treated with urgency and with a view to resolve them quickly and satisfactorily. Local team managers are empowered to resolve complaints; actively contacting customers, visiting them where necessary, to understand what can be done to put things right.

7.24 For RIIO-ED2 we have introduced new ambitious targets for complaints. During RIIO-ED1 we committed to resolving 70% of complaints within one day and we have set ourselves the challenge of increasing this to 90% of complaints in RIIO-ED2. In 2023/24 we resolved 86.5% of complaints within one day, a significant increase from the previous price review period and showing progress towards our new ambitious target. We are confident that our ever evolving focus on customer excellence will pay dividends in future years.

7.25 We have also established a target to resolve 99% of complaints within 31 days and have again made significant progress towards achieving this in year one, with 98.6% of complaints resolved within 31 days.

7.26 We have begun a process of enhanced trend analysis to identify the sources of customer complaints and to explore any areas where we might be able to address issues proactively and at root cause. As a result of our initial analysis we have identified over 20 ideas for potential enhancements, these include:

- further empowering our first line teams to address customer concerns
- improving the availability of self-service resources for customers to find information which may be impacting their satisfaction
- providing quick and easy solutions for customers to provide feedback.

7.27 We will listen and learn from the feedback our customers provide us and if a customer does have a complaint we will make the resolution simple and easy for them.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Connections

8.01 When customers want to connect to our distribution network, we want the process we offer to be speedy and simple. There are three main categories of customer that engage with us in this area: demand (customers who use electricity); generation (customers who generate electricity and may wish to export it to the network); and unmetered connections (customers with equipment that does not have its own meter such as street lighting).

8.02 Within these categories there are varying customer 'types' with different needs and expectations ranging from small connection customers looking for a single service connection to major connection customers managing multiple/complex connections.

8.03 During the 2023/24 regulatory year we have begun a transformation in the way we set ourselves up to deliver customer connections, introducing new strategic leadership roles to maximise focus on core connections processes whilst increasing capacity and capability in vital areas such as connections reform, decarbonisation of transport and strategic customer engagement.

8.04 In November 2023 we undertook a major connections customer workshop with a focus on connections strategy. Stakeholders provided a variety of feedback, highlighting some common themes such as the need for consistency across our four regions and a desire for improved, two-way, communication. Stakeholders also identified more specific specialised support needs. The feedback provided has been used to inform the restructure of the NGED connections directorate.

8.05 We have initiated Customer Journey work for connections, recognising that our customer base has a broad range of needs. We have been developing a better understanding of our customers and their journey from pre-application to application, to post application and connection, so that we can deliver tailored solutions.

8.06 Further information specifically in relation to our Major Connections activity can be found within NGED's Major Connections Annual Report on the website at **https://yourpowerfuture.nationalgrid.co.uk/our-engagement-groups/connection-customer-engagement/major-connections-annual-report-mcar**

8.07 Within our RIIO-ED2 business plan we included two specific core commitments for connections customers.

Output 31	Make it as easy as possible for customers to apply to connect individual domestic low carbon technologies by providing a same day connections response via an online self-assessment tool.

8.08 We continue to work to expand our digital offering to connection customers – with the aim of allowing customers to manage their connection through all stages – pre and post application.

8.09 As we transition to net zero we recognise that volumes of enquiries for low carbon technologies will increase significantly and that our systems need to adapt to accommodate these volumes and to provide a smooth and simple customer journey.

Domestic low carbon technologies

8.10 During 2023/24 we have implemented two online self-assessment tools on our website - one for electric vehicles and another for small generation installations, which includes solar, wind, battery, storage, and heat pumps.

8.11 As a result of this, and wider activity to improve the customer connection journey, we have enabled over 80,000 LCT connections during the year, with 89% of direct enquiries approved on the same day. Of these enquiries 5,500 were made through our online EV tool and were approved within 20 seconds. We have had just under 2,000 enquiries for small scale embedded generation which was launched in February 2024.

8.12 In 2024/25 we will introduce a self-assessment tool for domestic heat pumps.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Connections

Digital offerings for small connection customers

8.13 For small connections customers seeking one to four connections, or one commercial connection up to 69KVA, we have introduced our Click2Connect programme. Initially, this has allowed LV customers to take charge of their connection, offering customers instant budget estimates.

8.14 Further planned developments for 2024/25 include providing the ability for LV customers to obtain a firm quotation through our Customer Portal in less than 15 minutes, we plan to expand this offering to HV customers if successful.

Major connections customers

8.15 We have also introduced the Clearview reporting suite – a series of initiatives enabling customers to manage their connections themselves, at a time that is convenient to them.

8.16 Clearviewconnect brings together valuable connections data and insights for customers and developers in a single, easily accessible format. It provides access to technical capacity data and information on reinforcement works at each of our Grid Supply Points, informing developers which network area offers them the most realistic prospect of the quickest and cheapest connection. It also provides an anonymised view of third-party projects already in the pipeline, enabling customers to see what their connection timeline could look like pre-application and any potential curtailment required if their connection was accelerated under a new non-firm contract. Clearviewconnect can be found on our website - **https://connections.nationalgrid.co.uk/clear-view/**

8.17 Clearviewcharge provides a view of the DUOS tariffs across all our licence areas for LV and HV assets connecting (or looking to connect) to our network. Clearviewcharge can be found on our website - **nationalgrid.co.uk/our-network/use-of-system-charges/clearviewcharge**

Output 32	Provide quicker and cheaper connections options for customers by introducing a wider range of curtailable and flexible connections.

8.18 Standard connections agreements allow customers to utilise that connection to the full rated capacity of the agreement at all times of normal network operation. These agreements require the network to have the stated capacity available, even if it is not being used.

8.19 A significant challenge within the connections environment is keeping up with demand and ensuring capacity is available on the network. Against the backdrop of an increasing connections queue, and a constrained network, we continue to develop smarter ways to connect customers. Curtailable or flexible connections include some form of limit placed on the customer (whether generation or demand) but allow for the deferment of costly and time-consuming network reinforcement.

8.20 Our business plan commitments were published in December 2021 and in May 2022 Ofgem published a Significant Code Review (SCR) – a mechanism for reviewing existing practices in order to accelerate industry reform. The 'Access and Forward-Looking Charges SCR', also known as the Access SCR, changes the way that we charge for connecting to our network and is designed to ensure that customers are able to access the electricity network efficiently and to encourage new technologies to connect.

8.21 The Access SCR applies to connections in areas of the network that would otherwise be subject to constraints and provides a standardised approach to providing curtailable connections and enabling both the costs and timescales of connections to be reduced.

8.22 The requirements of the Access SCR supersede our business plan commitment to provide a wide range of differing connections and provides certainty for customers and faster access to a connection.

8.23 An example of the activity that we undertake to facilitate quicker and cheaper connections is the introduction of the Grid Supply Point (GSP) Technical Limits initiative, developed in line with the Energy Networks Association's 3-point connection plan.

8.24 The initiative aims to accelerate the connection of generation and storage into the distribution network ahead of required transmission level reinforcement works. A growing volume of connecting generation are delayed in connecting due to the long build times of network assets associated with the high voltage transmission network.

8.25 A Technical Limit is a limit for a specific Grid Supply Point (GSP) agreed between the Transmission Electricity Systems Operator (ESO) and the DNOs. It allows DNOs to connect qualifying customers ahead of the completion of required transmission reinforcement works, under the condition that the DNOs limit the power flow across the GSP to their agreed limit. This is facilitated through the DNOs' deployment of automated control schemes, and the subsequent control of generation customers' power imports and exports.

8.26 We have released 10GW of additional connection capacity through the Technical Limits trials, enabling customers to sign new contracts that in 2023/24 accelerated 1,418 MW of projects by 6.1 years on average.

8.27 More information on the Technical Limits initiative can be found on our website at **nationalgrid.co.uk/our-network/statement-of-works/technical-limits-and-expression-of-interest**

8.28 This process will enable acceleration of customer connections, on a non-firm basis, allowing them to energise earlier than dates previously advised. NGED were the first DNO to energise a scheme under this initiative as detailed in the following case study.

Case Study
Environmena brings Horsey Levels online

Environmena, a renewables company, used National Grid's Technical Limits Initiative in order to bring the Horsey Levels solar farm online.

The process required collaboration between National Grid, Environmena, Somerset Council and Blackfinch Energy and demonstrates the benefits of such collaboration in driving the UK's energy transition.

With an annual energy yield of 27,550 MWh the solar farm has the capacity to provide clean energy for 10,000 homes.

Horsey Levels was successfully connected ahead of its original planned connection date as a result of the innovative Technical Limits process. The success of the project demonstrates the benefits of industry partners working together to allow faster connection to the Grid and helping local communities contribute to net zero targets.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Network resilience

Output 33	Maintain network reliability where on average power cuts are better than one interruption every two years lasting less than 24 minutes whilst utilising vulnerable customer data to prioritise network improvement schemes.

8.29 Network reliability remains a top priority; we regularly inspect, maintain and, if necessary, replace our equipment to ensure our network performs effectively. To ensure that the impact of faults on customers is minimised, we reduce the time that power cuts last by using automation on the network to redirect supplies, restoring customers' electricity supplies quickly. We measure performance against both Customer Interruptions (CIs) and Customer Minutes Lost (CMLs).

- Customer Interruptions measure the average number of power cuts per 100 customers.
- Customer Minutes Lost measure the average length of time that each customer is without power.

8.30 We undertake a wide range of activities to reduce the number of faults on our network – this includes completing comprehensive inspection and maintenance programmes. We have a long term asset replacement program to replace poor condition assets on our network such as wood poles, switch gear and transformers. We undertake routine tree clearance programmes as interruptions can be caused by trees falling into overhead lines or by branches coming into contact with equipment.

8.31 To reduce the number of customers affected by power cuts we install a range of technology that aims to reduce the number of customers affected when a fault occurs. This includes subdividing the network into smaller protection zones and utilising network automation. We also have a clear focus on restoring supplies quickly when a fault occurs.

8.32 Performance against CIs and CMLs targets has proved challenging across all four licence areas for 2023/24. During this period our region experienced 13 named storms, and one significant event. Five of these storms were recognised as exceptional events meaning that our teams were responding to more than 8-times their usual number of faults and yet still managing to restore 99.9% of customers within 24 hours.

8.33 During 2023/24 we ensured that customers experienced less than one interruption every two years. However the average length of interruption was 28.5 minutes. We recognise the inconvenience that a lengthy interruption can cause and we therefore continue to take steps to ensure that interruptions are minimised and that the length of an interruption is as short as possible.

8.34 During 2023/24 we spent £3.1m (nominal prices) on maintaining Quality of Supply, recognising that whilst there are no direct allowances for this within RIIO-ED2 we can identify schemes that will benefit our customers. We have budgeted for further spend against Quality of Supply for the remainder of RIIO-ED2 and are confident that performance can be improved as a result.

8.35 We have initiated further analysis of faults with the aim of identifying underlying causes and trends that may provide us with the opportunity to minimise repeat incidents. We use data from our operational control centre, Helicopter Unit, Asset Management and Field Operations teams to identify opportunities for improvement. We will continue to use this data over the course of RIIO-ED2 in order to take proactive steps to address transient faults and tree related faults.

8.36 We anticipate that the introduction of new dedicated Fault teams will have a positive impact on our response times, see details of the project trial for this initiative on page 11 of this report.

8.37 We recognise the potential impact of climate change on the resilience of our network. Our dedicated Policy Engineer for Climate Change Adaption has a remit to develop a roadmap for climate change and to assess climate hazards. The key hazards and associated risks for the resilience of our equipment have been identified as prolonged rainfall leading to flooding, heat events, sea level rise, drought and wildfire. As chair of the ENA Climate Change Resilience Working Group, we are participating in industry wide discussions highlighting risks and potential adaptations that may be required within ED2 and beyond in order to ensure that the network remains resilient to climate changes.

8.38 We are in the process of implementing system changes in order to allow us to overlay vulnerable customer data onto our existing mechanisms for identifying network improvement schemes. We will use PSR data as part of the decision making process – prioritising schemes with a high number of PSR customers.

Case Study

Innovation

We use innovation in order to improve our network resilience and reliability. We currently have a range of innovation projects ongoing in order to deliver improvements for HV and LV network performance.

During RIIO-ED1 we delivered an innovation project via Ofgem's innovation stimulus mechanism, the Network Innovation Allowance (NIA). Pre-fix focussed on our ability to detect and locate emerging HV faults as well as locating the causes of unplanned outages.

We are now commercialising the learning from this project to look to improve performance on our overhead lines network. Whilst some actions can already be delivered as business as usual activity we are undertaking additional research in order to achieve commercial readiness for other learning points. As an example we are working with an external supplier in order to develop a new type of transducer (a device that monitors the flow of electricity across the network) that will help us to verify the types of pre-faults identified by the Pre-fix project and potentially allow us to detect faults in a non-intrusive manner.

During RIIO-ED1 we also delivered works to explore the potential of LV pre-fault detection and location systems. We are currently planning further projects to enable the commercialistion of this learning.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Network resilience

Output 34 Improve the service for at least 8,260 Worst Served Customers by undertaking 70 schemes.

8.39 Worst served customers are defined by Ofgem as customers experiencing 12 or more higher voltage interruptions over a three-year period (with a minimum of two interruptions per year).

8.40 Improvements for worst served customers aim to reduce the number of interruptions for customers who experience an unusually poor level of service. The types of work carried out might include:

- the installation of additional automated switching so that fewer customers are affected when faults occur
- the installation of bird flight diverters in areas where birds fly into overhead lines and cause faults
- changing equipment which is prone to damage in exposed areas with high winds.

8.41 To date within RIIO-ED2 we have undertaken works to benefit 505 customers. This work has been undertaken within the South Wales region.

8.42 A specific circuit was arranged in such a way that a number of spurs emanated from the main lines. Before the work was started, there was limited protection installed on the spurs to segregate them from the main line. This meant that faults on the spurs would affect both the customers on the spurs and all other customers fed from the section of main line feeding the spur. The project focused on installing protection on a number of spurs, which means that faults on the spurs will now be cleared by the protection and the faults will no longer impact other parts of the network. In combination the installation of multiple spur protection will reduce the number of interruptions experienced by worst served customers on the circuit.

8.43 We continue to assess the opportunities available to make improvements for worst served customers and we will increase delivery over the remainder of the price control in order to achieve the commitments we have made.

Output 35 Counteract deterioration of network assets by delivering a 20% change in risk to keep network risk at similar levels to the start of the price control period.

8.44 The condition of network assets degrades over time and as a result NGED has an ongoing programme of asset replacement and refurbishment. The work is primarily carried out to maintain the reliability and safety of the network.

8.45 We assess the impact of asset replacement and refurbishment by applying a risk assessment process which considers the likelihood of an asset failing (asset health) and the consequences of the failure (criticality). Assets in good condition have a lower risk than assets in poor condition, so the act of replacing a poor condition asset with a new asset reduces risk levels.

8.46 All DNOs use a common methodology for the way in which asset health, criticality, and risk are assessed; this is referred to as the Network Asset Risk Metrics (NARMs). NARMs allow assets to be classified into different levels of health and criticality, allowing us to generate an overall risk measure for all assessed assets.

8.47 Without intervention, the overall risk to the network will increase as the network deteriorates over time. The table below shows the targeted risk point reduction that we will need to deliver in order to deliver a 20% change in risk to keep network risk at similar levels to the start of the price control period. We show performance against the overall targets for RIIO-ED2. A work delivery profile is in place to ensure that we achieve the risk point reduction that we committed to by the completion of RIIO-ED2.

NARM Performance	West Midlands	East Midlands	South Wales	South West	NGED Total
RIIO-ED2 total target	-519,787,560	-404,654,338	-362,711,582	-627,171,211	-1,914,324,691
2023-24 delivered risk points reduction	-73,446,845	-75,379,671	-64,427,486	-85,674,941	-298,928,943
RIIO-ED2 to date percentage	14%	19%	18%	14%	16%

Output 36 Reduce flooding risk of our key sites and engage with stakeholders to reduce the need for new assets in flood risk areas.

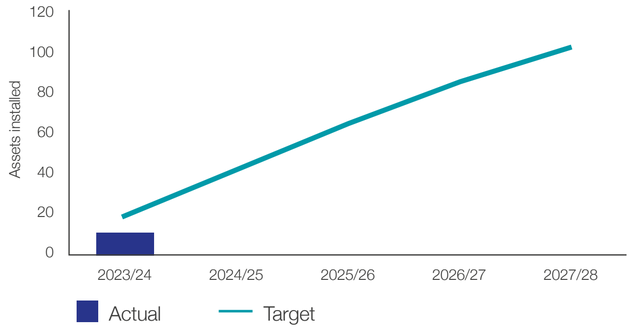
8.48 Flooding can pose a risk to our assets and impair our ability to keep power flowing. To mitigate this we install flood defences at a number of substations that are at a greater risk of flooding.

8.49 Flood risk is assessed based on the probability that flooding will affect electricity supplies and the number of customers likely to be impacted. Flooding is categorised as either fluvial or pluvial.

- **Fluvial flooding** – floods related to river or coastal sites.
- **Pluvial flooding** – floods related to excessive rainwater (flash flooding).

8.50 To date we have installed a total of 10 flood defences as part of our RIIO-ED2 programme, four related to fluvial flooding and six related to pluvial flood risks. Whilst scheme delivery in year one is less than anticipated, we have taken the opportunity during 2023/24 to undertake 31 detailed hydrological surveys in order to better inform our approach for the remainder of the price control. We remain confident that we will meet our targets over the course of RIIO-ED2.

Flood defences (assets installed)



Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Safety

9.01 There is nothing more important to us than the safety of our colleagues, customers and the public. The tragic loss of one of our team members in August 2023 was a sobering and difficult reminder of how dangerous our work can be and we have responded by triggering a comprehensive safety refresh across the whole organisation, serving as a reminder that there is nothing more important than conducting all activities safely, and that all colleagues are safe to stop if they have any concerns.

9.02 The key to a safe workplace is a good safety culture. We launched our 'Fair Culture' initiative during 2023/24 to focus on this. We are encouraging and enabling everyone to have a voice when it comes to safety, reminding colleagues of the importance of reporting any issues they are aware of and removing any fears of being 'blamed'. During the course of RIIO-ED2 we will continue this focus on developing a culture where people know it is safe to speak up if something doesn't feel right, and where we have a clear strategy to drive ongoing improvements to our safety performance and reporting.

9.03 During 2023/24 our Lost Time Injury Frequency Rate (LTIFR) was 0.098 per 100 staff against a target of 0.10. During 2023/24 we have undertaken work to understand our culture in order to inform a range of Behavioural Safety initiatives to be delivered in 2024/25 and beyond.

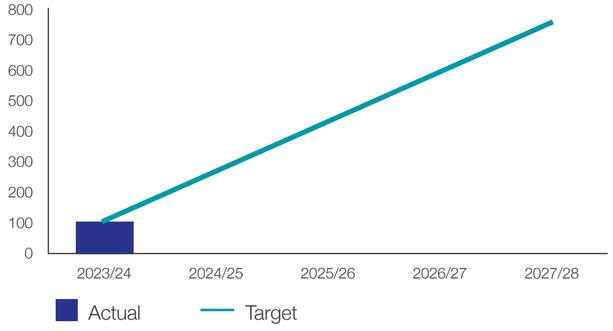
9.04 As part of our RIIO-ED2 Business Plan we established two core commitments for safety as detailed below.

Output 37	Increase the safety of children by delivering schemes to underground, insulate or divert overhead lines that cross school playing areas.

9.05 We have committed to taking a proactive action to reduce risk and keep children safe by delivering schemes to underground, insulate or divert overhead lines that cross school playing areas.

9.06 An initial survey of potential risks identified over 700 assets that would require action. Each pole in the vicinity of a school has been risk assessed and categorised from 0 (very low risk) to 5 (high risk). Each asset has been logged via our asset management systems in order to monitor progress over the course of RIIO-ED2.

School risks removed



9.07 During 2023/24 we removed 111 overhead hazards that crossed school playing areas and we are on track to deliver the school risk removal programme by the end of RIIO-ED2.

Output 38	Keep our children safe by sending electrical safety education packs to every primary school in NGED's region and educate at least 80,000 children per year via direct learning.

9.08 Our education outreach programme provides information and education to children and young people to raise awareness and help protect them from the dangers of electrical equipment.

9.09 For RIIO-ED2 we have developed an educational resource pack, which consists of an interactive lesson designed with teachers. The pack has been made available to all primary schools across our four licence areas.

9.10 Our comprehensive education programme uses a range of activities to teach children about the importance of electrical safety and includes:

- individual school visits
- Crucial Crew and Junior Life Skills events – held in conjunction with emergency services and linked to the national curriculum
- resources, games and videos for students and teachers on our Power Discovery Zone website
- educational engagement at major agricultural shows and STEM festivals during the summer
- electrical safety resources at permanent safety centres across our regions.

9.11 We have passionate teams focused on education and outreach, supplemented and supported by colleagues from across the business who volunteer their time to help engage and inform on electrical safety. This approach has allowed us to exceed our in year target, engaging with over 94,000 children on the topic of electrical safety.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Business IT security and cyber resilience

Output 39	Reduce the risk of data loss or network interruption from a cyber attack by continually assessing emerging threats in order to enhance our cyber security systems.

10.01 The Security of Network & Information Systems Regulations (NIS Regulations) provide legal measures to boost the level of security (both cyber and physical resilience) of network and information systems for the provision of essential services and digital services.

10.02 To ensure that controls and processes are in place to mitigate the risk of any future possible cyber attack, we have adopted the NIS Regulations as our benchmark standard along with cyber security principles for all our IT and operational technology (OT) systems, including those associated with Critical National Infrastructure (CNI).

10.03 To ensure NIS compliance and to manage the evolving IT cyber security risks, we have extended the size and scope of our cyber security team to include dedicated OT cyber security resource.

10.04 NGED uses the Cyber Assessment Framework (CAF), and the NIST Cyber Security framework in order to assess our cyber resilience in relation to essential functions.

10.05 The NIST score is a standardised way of evaluating the maturity of our security controls. In 2023/24 the work that we have undertaken to improve our resilience has enabled us to achieve a continuing improvement in our National Institution of Standards and Technology (NIST) score.

10.06 Activities that we undertake include:

- regular scheduled system penetration testing programmes to identify system vulnerabilities
- end user cyber security awareness programmes
- supply chain security guidance and controls
- independent external audits to review our cyber security management systems in order to identify and mitigate ongoing threats and vulnerabilities
- industry specific threat intelligence monitoring
- regular review of practice via our internal Risk Management mechanisms.

Output 40	Reduce the risk of disruption to our operations and enhance the resilience of our IT network security as we deliver greater digitalisation by increasing levels of threat monitoring, prevention and alerting systems and upgrading our disaster recovery capability to ensure continuity of our operations.

10.07 Our establishment of a DSO function has led to the need for development of more efficient and digitalised networks to manage power flows across the distribution network. As a result, traditional boundaries between IT, OT and customer owned devices are becoming more interconnected than ever. This has led to an increase in the number of end-points (PCs, smart meters, remote terminal units) that we have to maintain and secure.

10.08 The implementation of the NIS regulations has led us to place greater emphasis on OT cyber security and we have:

- applied IT best practice to the OT environment
- identified the vulnerabilities and risk specific to NGED's OT infrastructure
- identified the tools and technologies required for DSO activities
- identified CNI-related telecoms components to ensure that they are fit for purpose
- purchased and implemented specific OT monitoring capability
- put in place monitoring of industry specific OT threat intelligence.

10.09 We continue to identify new initiatives to improve the cyber security of business functions and systems.

10.10 Our annual assessment against the CAF and year on year improvements in our NIST score enable us to validate our activities in this arena to ensure that we are meeting our commitments.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Workforce resilience

Output 41	Demonstrate exceptional and embedded employment practices by the end of RIIO-ED2.

11.01 We are committed to being an employer of choice, attracting new talent to the sector and driving the transition to net zero. While continuing to prioritise safety, health and wellbeing, we are focussed on improving diversity, equity and inclusion, upskilling and empowering our people to thrive in their careers.

11.02 During 2023/24 we have implemented a new operating model, focusing additional capacity and capability in the areas of Customer, Connections, Asset Management, DSO and Data and Digital. In total we have grown our business by over 500 new colleagues in the last year.

11.03 As the business grows we continue to develop our people strategies but there are key elements that remain central to our approach. We are committed to building an inclusive culture where diversity is embraced and everyone can succeed.

Maintaining a working environment where everyone feels safe, accepted and respected

11.04 We operate a company-wide 'Safe to Say' principle which underpins our safety culture and our values as a company. Safe to Say means having meaningful and regular safety discussions, openly talking about our safety performance (whether it's good or bad) and, most importantly, being and feeling safe to say what's on our minds.

11.05 In March 2024 we introduced a 'Speak Up' policy identifying how concerns about unethical conduct can be raised and how these concerns will be addressed. We also operate, via a third-party supplier, an anonymous hotline for colleagues to report ethical concerns. This hotline is available to all colleagues and contractors, 24 hours a day, 365 days a year.

11.06 Teams regularly discuss safety via team meetings, safety briefings and general discussions. Team brief sessions include a section on safety performance and gives individuals the opportunity to speak up and raise any issues.

11.07 Safety is a fundamental part of our Code of Ethics, and we expect all colleagues to put their safety, customers safety, and those they work with first. Where we hold concerns that our colleagues are not adhering to safety standards, we refer them for investigation by our independent Ethics Team.

11.08 We undertake an annual survey testing whether people feel able to share concerns and seek to achieve year on year improvement in our scores. Our annual Safe to Say result for 2023/24 showed a 3% improvement on our 2022/23 results.

Investing in our Leaders

11.09 During 2023/24 we delivered a behavioural leadership programme aimed at building high performing teams. This provided line managers with sessions on the following:

- building a high performing team
- emotionally intelligent leadership
- leading a team to adapt proactively to changes
- being a positive impact communicator
- being an effective coach and mentor.

11.10 We undertake development assessments for our operational leaders to enable them to focus their development actions and we are providing coaching and a wide range of leadership programmes where interventions are required. We deliver regular leadership upskilling sessions and leadership labs – bitesize virtual sessions which are designed to help leaders focus on their own leadership skills.

11.11 Working with behaviour change specialists, Mindgym, we offer colleagues online and in person coaching. For 2023/24 this included sessions at our annual leadership conferences seeking to engage all leaders in Diversity, Equity, and Inclusion best practice.

Supporting Social Mobility

11.12 To remove additional barriers to a career in the energy industry we continue to invest in the Power Network Craft Assistant (PNCA) scheme, which waives formal educational requirements in order to encourage applications from those who have the attitude, work ethic, and relevant life skills but lack the academic qualifications to join our craft teams via other routes. In total during 2023/24 we had 24 successful PNCA recruits over the course of two intake periods.

11.13 The scheme runs for a period of 12 to 15 months providing formal training followed by the opportunity to gain experience through on the job training. Trainees develop a portfolio of evidence and are provided with an individual learning plan. Trainees are provided with a mentor and have the opportunity to progress to a range of career opportunities such as the Power Networks Craft Apprenticeships.

Supporting colleagues to thrive at work

11.14 We provide a range of support mechanisms to ensure that colleagues have the opportunity to develop in a supportive environment. This includes:

- National Grid has nine UK and Global Employee Resource Groups (ERGs) which help build awareness and understanding of inclusion and diversity. Each ERG is run by a committee of employees who volunteer from across the company. They offer colleagues the chance to attend events, panels and celebrations. Further, the ERG offers colleagues the chance to develop personal goals, connect with others, develop community partnerships and help to identify gaps and opportunities for improvement within National Grid policies.
- Mentoring can help colleagues better understand how they can progress their career, learn new skills and close gaps on their development journey. Mentors are allocated to all colleagues on a formal training scheme within the business and we have rolled out mentoring training to over 900 delegates to date.
- Our Employee Assistance Programme is available to all employees and provides information and guidance on a range of topics that may impact an individual's mental health and performance at work, this includes legal matters, money concerns and health and wellbeing information. Colleagues can access a range of support from short term counselling to confidential advice on personal or work related issues.
- Colleagues can download our Thrive app. Through partnership with Thrive Mental Wellbeing we provide tools for individuals to manage their mental health, including an in-app therapy service.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Workforce resilience

Providing early career opportunities

11.15 We provide a range of early career opportunities including Craft Apprenticeships, Graduate Development Programmes, Intern schemes and support programmes for new managers. During 2023/24 we took on 16 new graduates who will undertake placements across the business.

11.16 We work in partnership with the 10,000 Interns Foundation and Change 100. The 10,000 Interns Foundation champions under-represented talent and promotes equity of opportunity and experience, offering students and graduates paid internship opportunities across a range of UK industries. During 2023/24 we placed eight interns and from our 2023 cohort, two applicants have now secured permanent roles with NGED.

Providing development tools for all colleagues

11.17 All employees can access LinkedIn Learning which allows colleagues to access over 8,000 learning resources covering a wide range of topics. LinkedIn Learning is a flexible solution, accessible via any internet-enabled device allowing individuals to access learning at a time convenient to them.

Employee engagement

11.18 We recognise the benefits of an engaged workforce and test employee attitudes via Grid:voice, an anonymous annual survey where every member of staff is invited to have their say about working for National Grid. Grid:voice enables individuals to share their views on what it is like to work for NGED so that we can build on what is going well and improve what isn't.

11.19 Once the survey is closed, managers or supervisors are given access to a personalised results dashboard to enable planning for impactful local action.

11.20 The survey provides data for the following (non-exhaustive) list of themes:

- **Engagement Index** – assessing overall employee motivation.
- **Employee Enablement Index** – assessing individuals sense of contribution productivity.
- **Having a Voice Index** – assessing how far individuals feel safe to express themselves.
- **Leadership Index** – analysing relationships with line managers.

11.21 The results allow us to plan for activities that will enable improvement. Local teams are encouraged to create local action plans against the backdrop of NGED level initiatives.

Case Study
Grid:Voice in Action

As an example, the 2022/23 Grid:Voice results identified that colleagues wanted to see more communication from management around long term direction and strategy.

A range of new communication mechanisms have been established during 2023/24 to improve this, including:

- Sending a weekly 'NGED round-up' email briefing all colleagues on activities taking place across NGED.
- The establishment of an 'All-Colleague Call' on a regular basis – led by President, Cordi O'Hara via Zoom, with a variety of sessions delivered by our Directors on wide ranging topics from Workplace Safety to the Efficiency programme. Each session concludes with an open Q&A session enabling attendees to have their say. Every session is recorded to enable colleagues to catch up if they were unable to attend.
- The introduction of our Manager Zone – providing managers with one easy location to access manager guides, team brief materials and latest updates.

Behaving ethically

11.22 Our Code of Ethics outlines how we behave and is shaped by our three values – Do the Right Thing, Find a Better Way and Make it Happen.

11.23 We launched a new Code of Ethics in March 2024, which clearly articulates our ethical expectations of our colleagues. We've been embedding the key messaging contained within the Code of Ethics in a number of ways including a communications campaign for colleagues. Leaders have been provided with messaging to share within team meetings and our independent Ethics Team have carried out in-person visits across our depots. These visits have focused on ethics, what to do if you have a concern, and how the Ethics Team can support colleagues.

11.24 If a colleague has a concern that someone may be acting unethically, they can report this to their line manager, Human Resources, or to our central and independent Ethics Team (via our anonymous hotline if preferred). If there is evidence of a potential ethics breach, the Ethics Team will conduct an investigation and take appropriate steps to address the issue, which may include instigating disciplinary proceedings.

11.25 The Ethics Team report to our Ethics, Risk and Compliance Committee which meets periodically and is chaired by our General Counsel. At the Committee, the Ethics Team's performance is scrutinised, together with key themes and metrics that relate to our business. Our leaders use this insight to help drive cultural change.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Workforce resilience

Output 42	Achieve year-on-year improvement to the levels of diversity within the business and publish an annually updated Diversity, Equity and Inclusion Action Plan.

11.26 At NGED we value colleagues from all backgrounds and celebrate the diversity this can bring to our business and our culture. We are committed to maintaining an inclusive, respectful and diverse workplace and on an annual basis we update our Diversity, Equity and Inclusion (DEI) Action Plan and share this with our employees.

11.27 We aim to:

- attract, retain and develop a high performing, diverse workforce
- increase diverse representation in leadership roles
- maintain a workplace culture of equity and inclusion
- foster partnerships that support the growth and vitality of the diverse communities and customers we serve
- develop and sustain relationships with diverse suppliers, vendors and service providers.

11.28 Every new starter undertakes a group induction covering our ethics and our diversity and inclusion policies. All leaders have undertaken a range of training sessions for 'High Performing Teams' during 2023/24. Additional courses are available including several DEI focused courses – such as 'Leading Inclusive Conversations around Race and Racial Equity' and 'How to have Difficult Conversations around DEI at Work'.

11.29 We measure the gender and ethnic diversity of our workforce on an annual basis and have achieved year-on-year improvement to the levels of diversity within the business. From 2022/23 to 2023/24 our gender diversity increased from 15.7% to 16.0% and ethnic diversity increased from 3.9% to 4.5%.

Case Study

Diversity in action

We are committed to increasing female representation across the workforce, whilst aiming to reflect the communities we serve.

In March 2024, National Grid led its first Women in Operations conference, specifically for women, and male allies. The conference was arranged to celebrate the role women across the business play in our success, and to provide opportunities to connect with other women in NGED, particularly where individuals might be working as the only woman in their respective teams.

The conference was designed around the theme of 'connection' with two simple aims;

- connecting with leadership - to give honest feedback about how to improve individual experiences at work, and
- connecting with each other, to build a community and to continue the conversation after the conference.

The conference included breakout sessions to discuss the barriers that women face in a male dominated industry, the opportunity to network and make connections and discussions around how to support women, what male allyship can look like and how to overcome barriers in society and the workforce. Feedback from the event was overwhelmingly positive, leaving colleagues feeling engaged, seen, listened to, and respected.

Executive summary
Foreword – an overview from our CEO
Who we are and what we do
Performance snapshot
Our RIIO-ED2 Business Plan
A summary of our output performance for 2023/24
A smart and flexible network
Community energy
Environment and sustainability
Innovation
Customers in vulnerable situations
Social contract
Customer service
Connections
Network resilience
Safety
Business IT security and cyber resilience
Workforce resilience
Expenditure

Expenditure

12.01 We've been set allowances by Ofgem for RIIO-ED2, currently totalling around £5.8 billion over the 5 years. We're committed to keeping costs low for customers and delivering value for money. The savings that we do deliver are shared 50:50 between us and our customers. Output 16 details the current initiatives we are undertaking to achieve efficiency savings.

12.02 As we progress towards a smart energy future, the pace of change required means that a proportion of our allowances will be subject to variation through the price control. Ofgem have introduced "uncertainty mechanisms" that allow network companies to apply for further funding and for Ofgem to adjust our allowances in response to developments in the way that we deliver work. Around a quarter of our allowances are subject to these mechanisms. The allowances identified below are those agreed with Ofgem in their financial model, published in December 2023.

12.03 NGED expenditure for 2023/24 was 12% lower than allowances for total costs within the price control (Totex) with the variations by licence area shown in the table below. Expenditure for 2023/24 was in line with our expectations for the first year of the price control but further work is required to increase our pace of investment in order to achieve our RIIO-ED2 commitments.

Total costs (Totex) for 2023/24 (based on 2020/21 prices) £ million

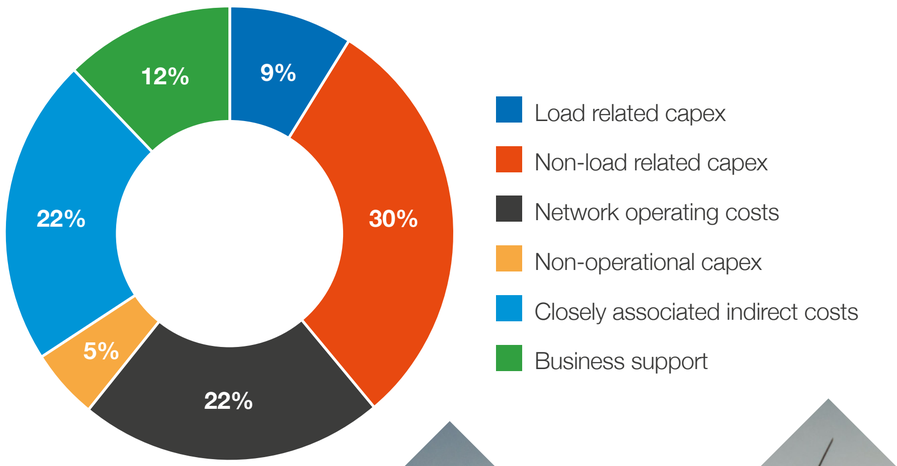
Licence area	West Midlands	East Midlands	South Wales	South West	NGED Total
Totex actual costs	278	299	158	255	991
Totex allowance	318	347	190	277	1,132
% difference	12%	14%	17%	8%	12%

12.04 Our expenditure covers all aspects of running a distribution network including the following:

- **Load related Capex** – costs related to providing extra capacity on the network.
- **Non-load related Capex** – capital investment in the network, including the replacement and refurbishment of assets which are in poor condition.
- **Network operating costs** – includes inspections, repair and maintenance, faults, and tree cutting.
- **Non-operational Capex** – includes buying new IT systems, property, vehicles, and small equipment.
- **Closely associated indirect costs** – the costs of staff and systems that allow us to carry out work on the network, such as network design activities.
- **Business support** – central functions teams such as Human Resources and Finance.

12.05 The split of costs by type is as follows:

RIIO-ED2 to date costs - split by type



National Grid Electricity Distribution plc
Avonbank
Feeder Road
Bristol BS2 0TB
United Kingdom

nationalgrid.co.uk

October 2024. BLU28244/PR