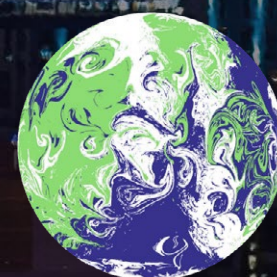# Our draft RIIO-ED2 Business Plan

Enabling the path to Net Zero from 2023 – 2028

1 July 2021

SP ENERGY NETWORKS

PRINCIPAL PARTNER
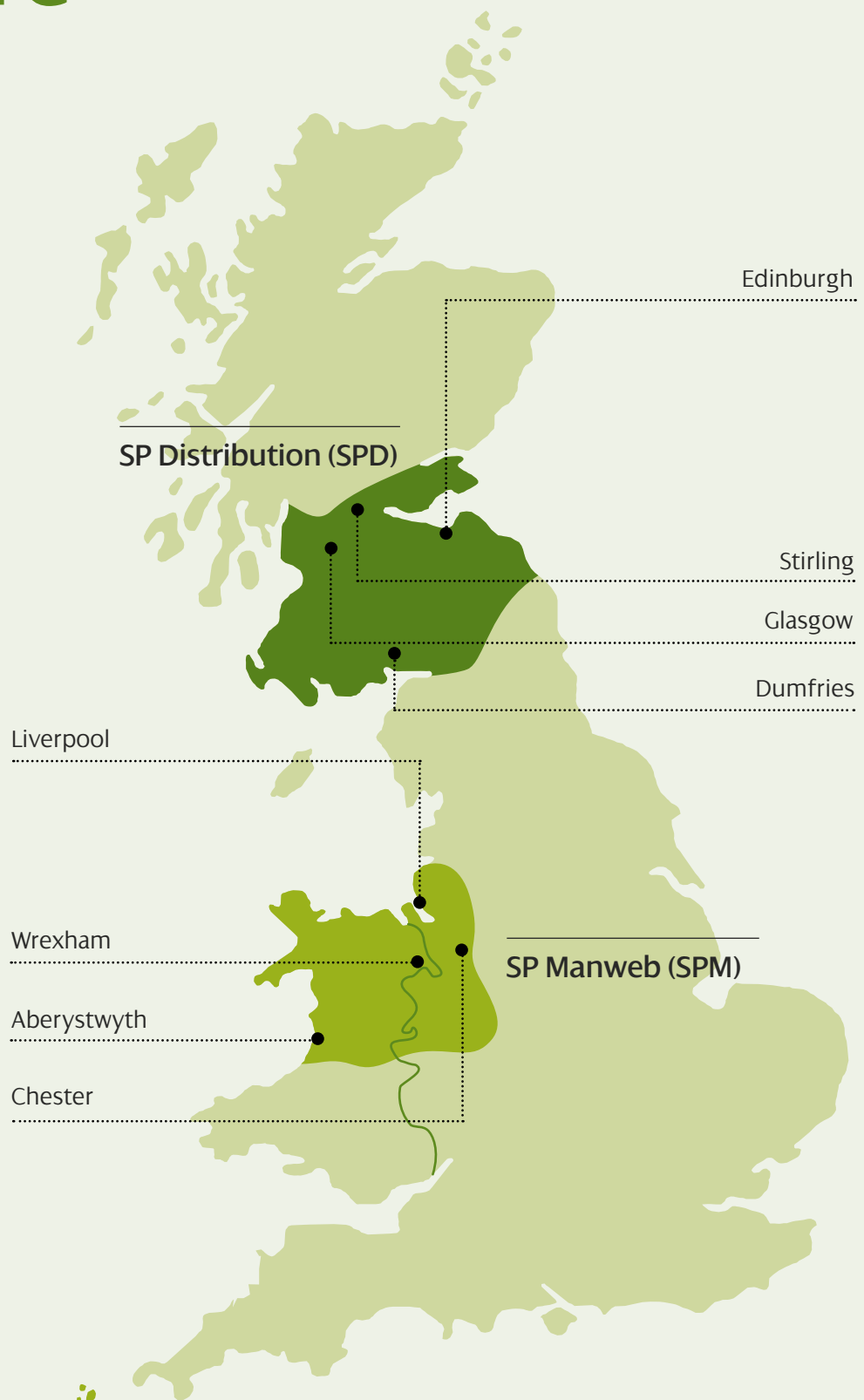UN CLIMATE CHANGE CONFERENCE UK 2021
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Who we are

We have two network areas, SP Distribution and SP Manweb, serving over 6 million people across 3.5 million homes and businesses, 24 hours a day, 365 days a year.

>6million

Our distribution network comprises over 100,000 kilometres of overhead lines and underground cables and over 30,000 substation.

>100,000km

SP Distribution (SPD)

SP Manweb (SPM)

Edinburgh

Stirling

Glasgow

Dumfries

Liverpool

Wrexham

Aberystwyth

Chester

SP Energy Networks owns three regulated electricity network businesses;

SP Distribution plc (SPD)
SP Manweb plc (SPM)
SP Transmission plc (SPT),

Our businesses are monopoly utilities which are regulated by Ofgem.

SP Energy Networks is part of the Iberdrola Group. Iberdrola is a global energy leader, the number one producer of wind power and one of the worlds biggest utilities by market capitalisation. Iberdrola will have invested 34 billion euros across their global business between 2018 and 2022, laying the foundations for sustainable growth over the next decade.

Our network is crucial to the delivery of the UK's Net Zero targets, and we are committed to making this happen at pace. Our customers, communities and stakeholders are at the heart ofeverything we do, and we always strive to deliver a first class service to all. Our business is essential in mitigating climate change, as we transition to a greener, more sustainable future.

Contents

1. Welcome to our plan

A message from our CEO

I am delighted to present our draft RIIO-ED2 business plan for 2023 to 2028. We deliver an essential public service. We keep the electricity flowing to 6 million people across 3.5 million homes and businesses across Scotland, England and Wales.

This is an important and privileged role and we never take it for granted; we 'keep the lights on' but do so much more. I'm proud to lead a business that has a strong track record. We deliver on our commitments, we seek to innovate in everything we do, and we provide exceptional service to our customers.

This plan is perhaps the most important we have ever produced, developed at a time of profound change. The challenge that will touch every part of our society is to halt the effects of climate change. To do this, we need to achieve Net Zero carbon emissions. This will lead to huge shifts in how we live our lives, most prominently as we replace the use of fossil fuels for transport and heat. Electricity will be at the heart of the solution, through electric vehicles and heat pumps. This all must be powered by more renewable generation and other technologies, which we will have to integrate into the distribution grid.

We forecast that up to 1.5m EVs, 0.9m heat pumps, and over double the amount of distributed generation, will be supported by our networks by the end of this decade. This is a radical increase on what we have today, and it will impact every part of our business. There is still a lot of uncertainty on when and how – and how fast – some of these changes will happen. But the direction from our national, devolved and local Governments is clear: Net Zero is not an option – we have to ramp up now to meet future targets. Our job in RIIO-ED2 is to help make these a reality.

This plan sets out our response to this challenge. From 2023 to 2028 we will spend over £3.2bn to make sure that we can enable the path to Net Zero – a 28% increase on what we deliver today. To do this, we will create over 1,100 jobs in the communities that we serve – and more in our supply chain. We too will lead our own drive to Net Zero through a 38% reduction in our carbon footprint by 2028. And we will do this all while supporting our vulnerable customers in a time of great transition, delivering £62.5m of benefits through our extended support proposals.

This is the most ambitious plan we have ever built, informed by over 15,000 engagements with customers and stakeholders. The stakes are high, and we are clear on what must be done. We must be bold as we reimagine the architecture of our network, the services we provide to our communities, and the capabilities of our business and workforce.

What is Net Zero?

To halt the devastating potential of climate change, we must reduce the amount of greenhouse gases that we produce. Net Zero is a way of achieving this. It means that first we must reduce the emissions that we produce as much as we can, and then offset the remainder through other means.

To meet the 1.5°C global warming target set out in the Paris Agreement, global carbon emissions should reach Net Zero by 2050. The UK and Welsh governments have adopted this target, with the Scottish government accelerating their target to 2045. Cities and local authorities across the UK have also set their own ambitious targets for Net Zero ahead of 2050.

Our electricity distribution system will face the biggest changes to its design and operation for over half a century. Distribution networks were designed for predictable, stable demand. With Net Zero, electricity demand, generation, and consumer behaviour, will all change. Our networks are the product of a century of incremental evolution; the opportunities from new technology and innovation will lead to a consumer-led revolution in the use and operation of our system.

This plan sets out our vision for a future system architecture that can meet this challenge across our 105,000km of network and 30,000 substations. Using our innovative forecasting and modelling tools, built upon our Distribution Future Energy Scenarios, we have developed long-term plans to enable the coming wave of low carbon technologies on our network and keep supplies safe, secure and reliable. We will invest strategically, where we see the biggest issues emerging. We will do this using a variety of solutions, like flexibility and smart innovations, so that we deliver the right solution, at the right time, in the right way.

Essential to this is the evolution of the Distribution System Operator (DSO) model. The future will bring a more active and dynamic network as both consumers and generators interact more with the electricity system. To develop a flexible and truly smart grid, we are building on our track record of DSO innovation by rolling-out a new digital and communications infrastructure across 22 new 'zones' (30 in total) by 2028. Covering 40% of our network, this will be the platform for unlocking capacity and enabling new markets in flexibility solutions.

We recognise the complexity in navigating to Net Zero for national and local government. In RIIO-ED1 we have tested new collaborative initiatives for public Electric Vehicle charger roll-out. This has saved costs for both the taxpayer and billpayer through joined-up planning and design, and if extended from 2 local authorities to cover the 37 across our licence areas, could save up to £30m, while enabling more of our customers to enjoy the benefits of EV charging.

We want to take this further in RIIO-ED2, and we can see there is a gap between ambition and execution that we can help bridge. We propose to dedicate teams to work with our communities and deliver the energy infrastructure that they need, linking up the public and private sectors to ensure no-one is left behind in the transition.

This is something that resonates strongly with me, as we serve some of the most deprived areas of GB, such as in Glasgow and Liverpool. Vulnerability is a complex and changing picture, but we must ensure ALL communities benefit from the Net Zero agenda. I believe we have a duty to make sure that we support all our customers through the journey to Net Zero, and that means we want to push the boundaries of our role. We are proposing to extend our offering of advice and support services, such as installing money-saving low carbon technology for the most vulnerable.

As we support our society's Net Zero targets, our business must also lead by example and drive towards our own target. That's why we have put forward ambitious our own Net Zero target by 2040 – ahead of all national targets.

In doing all this, we can help enable a Just Transition to Net Zero. This is about addressing the societal impacts from climate action; doing the right thing by our communities and delivering positive social change through the low carbon transition.

We will generate real economic growth by recruiting for 1,100 jobs during RIIO-ED2, targeting this in the communities that we serve, with more again in our supply chain. Ultimately, this will support the growth in the low carbon economy across our areas. Alongside this, in our plan we put forward our proposal for a £30m Net Zero fund to support new jobs, social benefits and green energy projects. A proven model from our Green Economy Fund.

We know that the future is a constantly changing picture. This has been demonstrated clearly by the events of the Covid-19 pandemic. We need to push ahead in developing a flexible network, recognising the uncertainty in timing of impacts. That's why our plan will be accompanied by additional 'uncertainty mechanisms'; levers that we can pull to make sure we can respond quickly to changing levels of low carbon technology uptake. These are in development with our regulator and the industry, and we believe this is essential to build in the flexibility for what lies ahead.

As the only DNO to serve in all three devolved regions of GB, we understand that Net Zero will not evolve at the same pace across all parts of the country. In my conversations with stakeholders, I see that the energy transition will be locally-led. That requires us to have a locally-led response. We will need to work closely with the regulator to ensure that their framework for RIIO-ED2 allows us to match the pace of our communities, where the fastest mover can act as a beacon to all.

We've put the needs and ambitions of our customers and stakeholders at the centre of our decision making. Over 15,000 customers and stakeholders have helped us shape our plan so far. But we're not finished yet. Following publication of this plan we look forward to the next phase of engagement and consultation ahead of our final plan in December.

I'd like to thank all our customers and stakeholders that have engaged with us in the development of our draft RIIO-ED2 business plan so far. It's important that all voices are heard in this time of change. Your time and contributions have been vital to this process, and I hope that you will support us in further consultation as we refine this plan for its final submission in December.

I would also like to thank our Customer Engagement Group, chaired by John Howard. They've been with us every step of the journey in developing our RIIO-ED2 plan, and we've valued their input and challenge to ensure our plan is the best that it can be.

In over 30 years of my career in this industry, I have witnessed an enormous amount of change across the full value chain of the electricity sector. The decades since privatisation have delivered huge improvements in service to our customers, and I'm proud to lead a business that continues to push the boundaries. But I see greater change, and greater opportunity, ahead.

This is a challenging time, but an exciting time. In RIIO-ED2 we have the opportunity to re-think our approach to the grid and unlock greater value for our customers. We have the opportunity to evolve our role from an essential service provider to a trusted partner for our communities. And we have the opportunity to lead by example to a truly sustainable future.

In SP Energy Networks, we deliver on our commitments. And we'll continue to do the same in RIIO-ED2. Getting to Net Zero is not a question of 'if', but 'when'. By starting this journey now with you, our customers and our stakeholders, we can build a better future, quicker. I look forward to seeing what we can do together.

Thank you,
Frank Mitchell
Chief Executive Officer

The communities we serve and their ambitions

We are the only network operator where the communities we serve are spread across three governments: UK, Scottish and Welsh. Each of these governments has bold ambitions to deliver on sustainability and the Net Zero agenda with noticeable differences between the different regions.

The key strategic cities within our licence areas also have their own bold ambitions, which we have used to shape the development of our network and services. For example, Liverpool is targeting becoming a Net Zero carbon city by 2040 and Glasgow aiming for 2030.

We are committed to helping deliver these ambitions across all of our communities. We recognise our critical role in supporting the societal changes that will be needed and will play our pivotal role in delivering a just transition for the communities we serve – delivering jobs, economic growth, and environmental benefits.

Glasgow
Net Zero by 2030

Liverpool city region
Net Zero by 2040

Renewable generation targets

- 50% of energy consumption by 2030, almost 100% of energy consumption by 2050.
- An increase by 30% in the productivity of energy use across the Scottish economy by 2030.
- By 2024 all new homes must use renewable or low carbon heat.
- 40GW offshore wind, 1GW floating offshore wind by 2030
- And *"Setting a target to support up to double the capacity of renewable energy in the next Contracts for Difference auction, which will open in late 2021 – providing enough clean, low cost energy to power up to 10 million homes"*.
- 5GW of Hydrogen production capacity by 2030.
- 70% of consumption from renewables by 2030 (set in 2017)
- Additional 100MW of public and community generation by 2026.

% Greenhouse gas emission reduction by

- 75% by 2030, 90% by 2040.
- 68% by 2030, 78% by 2035.
- Average 58% (2026-2030), 63% by 2030, 89% by 2040.

Additional targets as part of the 10-point plan

- Install 600,000 heat pumps every year by 2028.
- Producing enough offshore wind to power every home quadrupling how much we produce to 40GW by 2030.
- Remove 10MT of carbon dioxide (CCS) by 2030.
- Protect 30% of UK land by 2030.

Net Zero target date

- 2045
- 2050
- 2050 (and 2030 Net Zero for public sector)

EV targets

- End the sale of new petrol and diesel vehicles by 2030 (but allow the sale of hybrid vehicles that have significant EV range until 2035).

Enabling and delivering Net Zero targets

We will enable our communities to meet their targets through our network development and our bespoke proposals to work collaboratively with our communities – such as funding local Net Zero initiatives, supporting community energy and network planning with local authorities.

Our business will achieve Net Zero Carbon by 2040 – ahead of all UK targets – by removing greenhouse gas emissions across our value chain and off-setting the remaining emissions. Our stakeholders have told us that it is important that we are ambitious in this area.

Our community partnerships

We're proud to be a COP26 Principal Partner

This year, we welcome the UN Climate Change Conference to Glasgow. Signing up as a Principal Partner for COP26 is a fitting culmination of our journey to Net Zero so far.

This will be the most important international meeting on the environment since 2015, and could be remembered as a significant milestone on the journey to Net Zero. To help the UK hit its world-leading climate change targets, we need to double our efforts, and we are proud that our people are going to extraordinary lengths to play their part. We hope that a 'Glasgow Agreement' that delivers a strong commitment to change will be the outcome of COP26 – And we're backing them with the ambitions you'll read about in our RIIO-ED2 Business Plan.

Underpinning the core themes of enabling Net Zero – more wind power, an electric pathway for home heating, the shift to EVs – is the role of our electricity network. Net Zero is the prism through which we take business decisions, and that's a profound change. It's a key reason for us becoming a Principal Partner of COP26, the largest summit ever hosted on UK soil. To do more than talk about a revolution, we need the same sort of paradigm shift across industry and the economy. Equipped with a clear strategic steer and a mandate to deliver Net Zero, COP is the ideal opportunity for Glasgow, Scotland and the UK to showcase this in abundance and demonstrate just what can be achieved by working together towards a common goal and a shared vision. That's why we're incredibly proud to be playing our part as a Principal Partner.

"We're part of the Net Zero North West Alliance with the metro mayor of the Liverpool city Region, Cheshire, Warrington and wider industry"

"We've enabled the future of electric vehicles through PACE – our strategic partnership with the Scottish Government – delivering a 200% increase in public EV charging and saving taxpayers an estimated £1m"

The impact of COVID-19

The impact of the COVID-19 pandemic is unlike anything seen in our lifetimes. It has caused sudden and dramatic changes to our way of life and every industry has felt its effects.

Throughout the pandemic, we've kept our staff and customers safe, kept the supply of electricity secure, and retained our focus on delivering critical infrastructure. We undertook a mammoth task to make sure the safety, security and resilience of our power supplies continued throughout the pandemic – especially to hospitals, care homes and other healthcare facilities who are on the frontline of the fight against COVID-19.

In developing our RIIO-ED2 business plan, we've engaged with over 15,000 customers and stakeholders so far, overcoming the challenges of the pandemic through agile working and innovative methods of communication. Online activities were the focus of our programme, including virtual meetings, interactive surveys and messaging platforms, which we also supplemented by traditional engagement approaches such as socially distanced door-to-door surveys and phone interviews. By taking this varied approach, we ensured that the full breadth and diversity of our customer and stakeholder base, including those in vulnerable situations or specific circumstances were involved in shaping our plans.

Our engagement has been delivered by the same team that is building our plan, to ensure we receive first hand views from our customers and stakeholders, meaning insight is embedded in our plan development process, and ensuring all voices are heard.

As we start to emerge from lockdown restrictions, it's time to start planning for a different future. It's important to get the economy moving again, and to drive towards a more sustainable future. We believe that electricity networks are a vital part of this process. We can respond quickly to support a green recovery, create jobs and spur investment that helps tackle the Net Zero challenge. By taking the right approach now, the UK can accelerate the race to zero emissions through electric vehicles, cleaner energy and low carbon homes – incentivising private investment, creating jobs, boosting our domestic supply chain and making sure that no communities are left behind.

Throughout our RIIO-ED2 plan, you will read about how we will support our most vulnerable customers during these more challenging times, and make sure they're not negatively impacted by the energy transition. We will also expand our network of partners to continue to deliver cost effective support to those who need it, when they need it most. We are committed to a Just Transition for all, and will respond and adapt our methods to ensure we realise our ambition to be at the forefront of Customer Service for all.

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Our RIIO-ED2 plan in summary

In this plan, we set out our proposals for the RIIO-ED2 period, from 2023 to 2028. We are combining the needs of our customers and stakeholders with the opportunities of the energy transition to create a plan that is more ambitious than ever.

We have undertaken extensive engagement in the development of this plan, which you can read about in Chapter 2, and have built our plan by listening to the priorities of our customers and stakeholders. These priorities are the foundations for our RIIO-ED2 strategy, outlined below, which will be at the heart of our decision-making and operations as we deliver this ambitious plan over the coming years.

Develop a network that's ready for Net Zero

We will develop our network of the future to meet our customers' low carbon ambitions, and continue to adapt our world class network to be more resilient and more reliable using innovative, flexible and efficient solutions. We will embed DSO and whole systems thinking in our, which will unlock capacity and enable new markets in flexibility solutions.

Be the trusted partner for our customers, communities and stakeholders

We will engage more with our customers and communities, supporting them by offering enhanced and tailored services, and going further for vulnerable customers. We will dedicate teams to work with our communities and help deliver the infrastructure needed. In addition, we will deliver bespoke funding opportunities to enable our stakeholders to realise their local energy ambitions.

Ready our business for a digital and sustainable future

We will create jobs, upskill our people, and strengthen our supply chain as we collectively challenge ourselves to do more with less, putting sustainability first, and looking towards a greener future. With smarter solutions, we will operate in a more digital and data driven world, and will share the benefits of the digital future with our customers and stakeholders.

Our plan benefits

We will enable Net Zero ambitions by connecting 670k Electric vehicles and 370k heat pumps.
>1m

Our digital enabled connections strategy will allow us to realise £15m of savings to connections customers.
£15m

Innovation and efficiency embedded in our plan will save £173m for customers.
£173m

We will increase customer satisfaction to 9.4 out of 10 – maintaining industry-leading ambition and performance.
9.4/10

We'll provide funding and support through our Distribution Net Zero fund and Community Energy activities to enable communities to realise their ambitions.
£30m

We will provide support services to more customers than ever before, delivering social benefits of £62.5m.
£62.5m

Reduce our carbon footprint by 38% by 2028; and achieve Net Zero by 2040.
−38% CO_2

We'll create over 400 new jobs, and recruit over 700 new employees to replace retirees.
>1,100 jobs

Embedding new digital approaches, innovation and process redesign will save customers over £60m.
>£60m

Our RIIO-ED2 expenditure in summary

We spend across a number of different areas to operate our distribution networks. Chapter 4 outlines what we will deliver, and Chapter 5 summarises our expenditure, including how we are proposing to manage uncertainty.

Non Operational Capex

£123m

Network Operating Costs

£509m

Load Related

£430m

£608m

Closely Associated Indirects

Non-Load Related

£1,203m

£3.2bn

Proposed expenditure for RIIO-ED2

£360m

Business Support
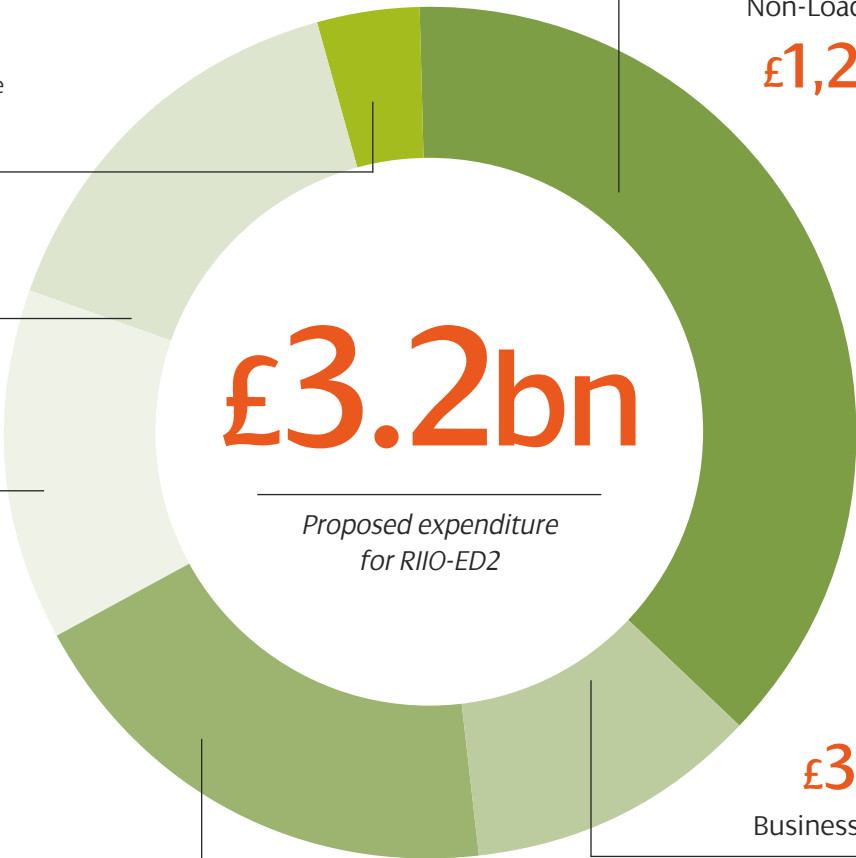
In addition, we are forecasting to spend a further £35m on Network Innovation Allowances (NIA) during RIIO-ED2, which build on our successful RIIO-ED1 innovation projects, and will deliver benefits for the future. You can read more in Chapter 5A on our NIA proposals.

Managing uncertainty

The rate of change required to deliver the transition to Net Zero is greater than ever. Due to the scale of change, there is uncertainty across several aspects of our plan, and we have detailed in Chapter 5 how our plans can adapt if mechanisms for managing uncertainty are available. In Chapter 5 we outline how our forecasts will flex to meet changing demand profiles.

Efficiency and innovation

We have embedded efficiency throughout our RIIO-ED2 plan. We have applied learnings from RIIO-ED1 to ensure that our plans deliver in the most cost effective manner for our customers. We maintain a focus on efficiency both in how we plan our investments and how we deliver them, and will continue to deliver industry leading unit costs.

1. We have embedded £60m of efficiency in our RIIO-ED2 business plan, building our plan efficiently from the bottom up.

2. We have embedded £29m of 'ongoing efficiency' in our plan, which is an additional efficiency 'stretch' to push us to go further than our efficient bottom-up business plan.

3. And we have embedded £84m of benefits from innovative techniques which have been successfully proven in RIIO-ED1.

£3,378m   £84m   £60m   £29m   £3,205m

Initial bottom up forecast   *efficiencies from innovation*   *embedded efficiency, at 0.6% per annum*   *ongoing efficiency – at 0.3% per annum*   *draft plan submission*
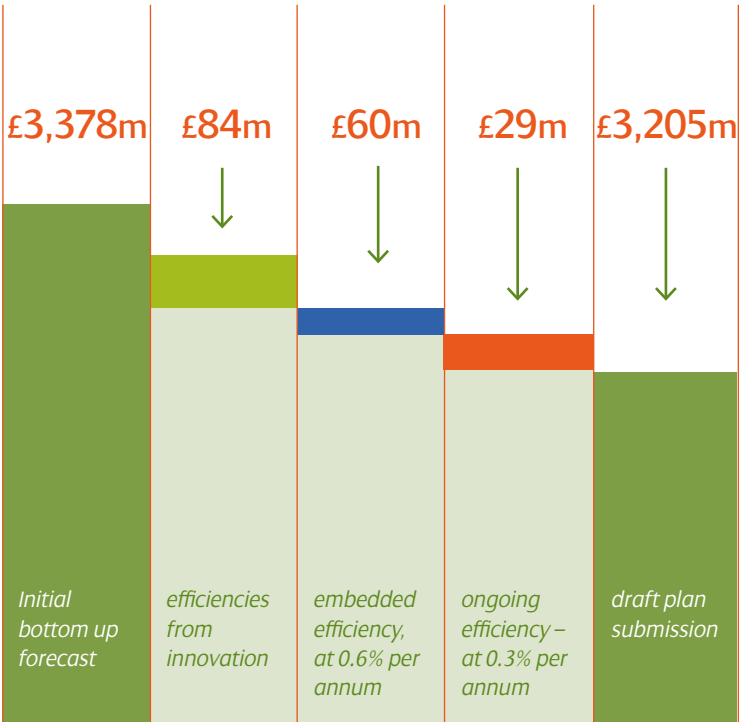
RIIO-ED2 expenditure

Our proposed RIIO-ED2 expenditure is £3.2bn, which will mean we spend £140m more each year during RIIO-ED2 than we have in RIIO-ED1– a 28% increase on our RIIO-ED1 expenditure. Some of the core drivers of the increased level of expenditure are outlined below, and are imperative to facilitate the transition to a low carbon future, meet the needs of our customers and to manage our impact on the environment.

For full details on our expenditure, please read Chapter 5A – Our Expenditure.

The table below outlines our £3.2bn of expenditure across cost drivers.   *£m (2020/21 Prices)*

SPEN	ED2 Total	Annual Average	
		RIIO-ED2	RIIO-ED1
Connections Inside the Price Control	61.0	12.2	3.2
Reinforcement	347.0	69.4	35.9
New Transmission Connection Charges	22.2	4.4	1.6
Total Load Related Expenditure	**430.3**	**86.1**	**40.8**
Asset Replacement & Refurbishment	602.0	120.4	110.0
Operational IT & telecoms	273.4	54.7	13.1
Safety programmes	123.2	24.6	35.6
Environmental Programmes	111.4	22.3	4.3
Resilience & Network Diversions	93.1	18.6	11.6
Total Non-load Related Expenditure	**1,203.1**	**240.6**	**174.7**
Faults, Severe Weather & ONIs	270.7	54.1	54.7
Inspection, Maintenance and Tree Cutting	196.3	39.3	36.3
Smart, and other activities	42.2	8.4	8.2
Network Operating Costs	**509.2**	**101.8**	**99.3**
Closely Associated Indirects	**608.4**	**121.7**	**110.4**
Business Support Costs	**360.3**	**72.1**	**66.5**
Non Op Capex	**122.7**	**24.5**	**13.1**
Totex Within Price Control	**3,234.0**	**646.8**	**504.9**
Ongoing Efficiency	**29**	**5.8**	**-**
Totex net of Ongoing Efficiency	**3,205**	**641**	**-**

Customer demand will increase with the uptake of Net Zero technologies such as electric vehicles and heat pumps – we need to invest to reinforce our LV network to enable these to connect and to improve visibility of our network. You can read more in Chapter 4A.

We are investing in Distribution System operation, to enable faster connection, improved management of constraints and increased levels of flexibility and reliability. You can read more about our transition to DSO in Chapter 4A.

Sustainability is a feature throughout our RIIO-ED2 plan. A key programme of work will be to remove all traces of PCB's –hazardous to health and the environment – through a targeted replacement programme, in addition to our other environmental programmes. You can read more in Chapter 4C.

The majority of our Network Operating costs, Closely associated indirects and Business support costs are broadly in line with RIIO-ED1 levels, and have increased only in areas which facilitate new or increased activity such as DSO and Net Zero.

Our digitalisation strategy is a critical enabler of our plan to offer new, enhanced services to our customers, share more data, improve the effectiveness of our operations, and increase the use of data in decision-making. You can read more in Chapter 4C.

Connections

The majority of our connections expenditure is funded directly by customers, and is therefore not included in the above 'Totex Within Price Control'. In Chapter 4A we detail that our forecasts predict a significant increase in our connections activity during RIIO-ED2, and we outline our strategy to provide timely and efficient Connections, to support Net Zero Ambitions.

Bill breakdown

The average electricity bill for a domestic customer in the UK is currently around £612 per year*. Distribution Network Operator (DNO) charges account for £105 or 17.2% of this. We recover these charges via electricity suppliers, predominantly recovered over a 45-year period.

Domestic customer bill impact

£m (2020/21 Prices)

In SPD, we forecast a reduction in our bills during RIIO-ED2. Although our expenditure increases, this is offset by two other reductions: the ending of historic financing arrangements (linked to the timing of privatisation) and the ending of our agreed established pension Deficit Funding.

In SPM, our expenditure also increases, but the reductions from the ending of our established pension deficit funding will not arrive until 2029, the first year of RIIO-ED3. This means that average bill during

the period will increase by 7%. Due to the profiling of changes, this translates to a £3 increase from the last year of RIIO-ED1 to the first year of RIIO-ED2. SPM customers will then see a forecasted £11 reduction to bills at the start of RIIO-ED3.

All of the above is based on Ofgem's instructed financing arrangements for this draft plan submission (including Cost of Equity of 4.65%).

SPD

SPM
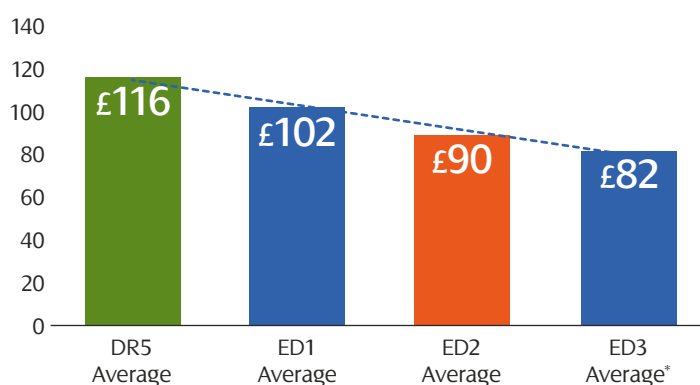
*RIIO-ED3 estimate uses same expenditure & financeability arrangements as RIIO-ED2.

Revenues

SP Distribution's Regulated Asset Value (RAV) is forecast to grow by around 7% during RIIO-ED1 (from £1.8bn to £1.9bn), and is projected to grow by a further 25% (to £2.4bn) during RIIO-ED2.

SP Manweb's RAV is forecast to grow by around 19% during RIIO-ED1 (from £1.8bn to £2.2bn), and is projected to grow by a further c21% (to £2.7bn) during RIIO-ED2.

Ofgem are proposing the return on equity for this investment reduces from 6.0% in RIIO-ED1 to 3.65% in RIIO-ED2, on a comparable RPI measure of inflation (which is 4.65% on the revised CPIH inflation basis).

For more detail on this, including our own assessment of necessary financing arrangements, please read Chapter 5 – Financing our plan efficiently.

Forecast revenues for RIIO-ED2

£m (2020/21 Prices)

	SPD Total	SP Distribution Averages		SPM Total	SP Manweb Averages	
		RIIO-ED2	RIIO-ED1		RIIO-ED2	RIIO-ED1
Depreciation	729	146	172	775	155	166
Return	321	64	64	360	72	69
Revenue associated with RAV	**1,051**	**210**	**237**	**1,135**	**227**	**235**
Fast Pot	480	96	47	542	108	53
Non-Controllable Opex (Rates)	337	67	70	223	45	43
Equity Issuance Costs	5	1	0	5	1	1
Tax Allowance	53	11	11	56	11	3
Pension Deficit Funding	60	12	33	160	32	32
Other	28	6	5	27	5	0
Revenue not associated with RAV	**964**	**193**	**166**	**1,014**	**203**	**132**
Allowed Baseline Revenues	**2,015**	**403**	**403**	**2,148**	**430**	**367**

How our plan aligns to Ofgem's Business Plan Guidance

The following two pages outline how are plan either meets or exceeds the requirements set by Ofgem for RIIO-ED2. For each theme in the business plan guidance we have provided section references to the relevant parts of our plan for easy navigation.

An open an transparent approach to our Business Plan

Track record in delivering – Our strong track record ofdelivery means you can trust us to do what we say we will. Throughout RIIO-ED1, we've delivered on our original commitments, and responded to changing network demands and unforeseen risks.	*Read about in: RIIO-ED1 track record – Chapter 1*	**Giving consumers a stronger voice –** To build our plan, we've engaged with a huge range of customers and stakeholders to understand what they require both now and in the future. We have also built ongoing engagement into how we will deliver throughout RIIO-ED2.	*Read about in: Co-creating our plan with customers and stakeholders – Chapter 2* *Continuing to engage with customers and stakeholders – Chapter 8*

Delivering value for money services for customers

Our bespoke outputs – We've proposed 3 bespoke Output Delivery Incentives (ODIs). These will drive improvements in the areas which our customers and stakeholders have told us are valued, in LV connections, community energy and advice services for energy efficiency and low carbon transition.	*Read about in: Our strategies and plans – Chapter 4* *Embracing the regulatory framework – Chapter 5C*	**Our Consumer Value Propositions (CVPs) –** We've developed CVPs to deliver greater value for consumers in 3 priority areas: ensuring vulnerable customers are not left behind in the energy transition; accelerating EV infrastructure; and network loss reduction & safety enhancement.	*Read about in: Our RIIO-ED2 Business Plan in detail – Chapter 4* *Embracing the regulatory framework – Chapter 5C*

Meeting the needs of consumers and network users

Vulnerability Strategy – We will go further in RIIO-ED2 on our Vulnerability strategy, and enhance support to vulnerable and disadvantaged customers to help them save money, access the benefits of the low carbon transition, make use of technology and receive support for wider social issues.	*Read about in: Support vulnerable customers and communities to ensure no-one is left behind – Chapter 4B.2*	**Major Connections Strategy –** We will offer customers increased network data transparency, easier to navigate connection processes, and maintain continuous engagement to tailor our services. We are also committed to providing faster quotations for Major Connections.	*Read about in: Provide timely and efficient connections – Chapter 4A.3*

Maintaining a safe and resilient network

Asset resilience – We'll continue to optimise network asset risk over RIIO-ED2 – carrying out the right interventions on our poorest condition assets, prioritised by criticality, to manage the overall level of network risk.	*Read about in: Ensure a safe and reliable electricity supply – Chapter 4A.2*	**Workforce resilience –** As we accelerate towards Net Zero, our workforce will need to evolve to meet changing workload, technology, and sustainability requirements.	*Read about in: Promoting an inclusive, skilled and healthy workforce – Chapter 4C.2*
Cyber resilience – We've developed robust IT and OT Cyber Resilience Plans to manage cyber threats to our network, control vulnerabilities in our operational technologies and increase our cyber maturity and capabilities.	*Read about in: Embed digitalisation to unlock Net Zero benefits for our customers and stakeholders – Chapter 4C.3*	**Physical security –** We're improving network safety and security by deploying new technologies and innovation, including critical security and safety programmes to reduce risk to the public.	*Read about in: Ensure a safe and reliable electricity supply – Chapter 4A.2*
Climate resilience – Our climate resilience strategy outlines how we will manage the impact on our networks from a range of natural and climate factors such as flooding, storms, and vegetation – over a range of plausible climate change scenarios.	*Read about in: Climate resilience strategy – Chapter 4A.2*		

Delivering an environmentally sustainable network

Our Environmental Action Plan – The environmental and sustainability requirements of RIIO-ED2 are a significant step-change from RIIO-ED1. We have fully detailed and costed the changes we will make that will enable us to achieve our sustainability goals.	*Read about in: An Environmentally Sustainable Network – Chapter 4C.1*	**Our sustainable business –** As a responsible network operator, we believe that our commitments do not and should not end at legal and regulatory compliance, and that we should lead the transition to a more sustainable network and society.	*Read about it in: A just transition – Chapter 3*

A smart, flexible energy system

Digitalisation Strategy and Action Plan – Our digitalisation plans will optimise our asset management, support new markets, increase opportunities for our people, and use technology to enhance customer services.	*Read about in: Our approach to delivering digitalisation – Chapter 4C.3*	**Data Best Practice –** As part of our Data Strategy, we will implement the principles and recommendations of the Data Best Practice Guidance, enabling open data sharing with our stakeholders and customers.	*Read about in: Maximising the value of data – Chapter 4C.3*
DSO transition – We will deliver DSO planning, operational and market initiatives, including new Constraint Management Zones, network monitors, and infrastructure to coordinate and dispatch flexibility and share data.	*Read about in: Our role as Distribution System Operator (DSO) – Chapter 4A.1*	**Enabling whole system solutions –** We have developed a robust strategy to embed whole system thinking across all aspects of our business, from innovation and investment decision-making to collaboration with industry partners and stakeholders.	*Read about in: Whole system solutions – Chapter 4A.1*
Our RIIO-ED2 Business Plan is built on proven innovation. We'll continue to be leaders in innovation, ensuring it is an integrated part of our business. This will deliver tangible benefits to our customers and the wider energy system.	*Read about in: Innovation – at the core of everything we do – Chapter 3*	We believe investment of NIA is needed for innovation, including early research and development that will not pay back within the regulatory period, and new solutions that benefit the wider industry.	*Read about in: Network Innovation Allowance in Embracing the regulatory framework – Chapter 5A*

Keeping consumer bills low

Forecasts and scenarios – Our Business Plan was informed by Distribution Future Energy Scenario (DFES) forecasts which consider a range of variables that will impact demand and generation up until 2050.	*Read about in: Engineering Net Zero – Chapter 4A.1*	**Cost information –** Our expenditure plans build on our RIIO-ED1 track record, focusing on the long-term asset management of our network, and ensuring that our network is ready to meet the growing demands of our customers.	*Read about in: Our expenditure plans – Chapter 5A*
Managing uncertainty – Due to the rate and scale of change to deliver Net Zero, there is uncertainty across several aspects of our plan. We've set out how our plans can adapt if the mechanisms for managing uncertainty are made available.	*Read about in: Managing uncertainty – Chapter 5B*	**Competition –** We have a responsibility to develop and maintain an economic, efficient and coordinated distribution network. We use market-driven competition to do this, for the benefit of consumers.	*Read about in: Competition: a continued commitment – Chapter 6*
Financial information – We have provided the financial information required by Ofgem to assess the financeability and financial robustness of our business plan.	*Read about in: Financing our plan – Chapter 5D*		

How to navigate this document

We have an ambitious plan for RIIO-ED2 and this document sets out our strategy, plans, and commitments from 2023 to 2028.

It is important to us that this plan is accessible to many different audiences. This covers many complex, interrelated topics. We have therefore structured the core of this document around our strategy for RIIO-ED2 to provide a consistent approach to discussing our plan.

This plan is a draft version, which we will engage and consult on, prior to the submission of the final version of our business plan in December. There is likely to be other changes, such as regulatory guidance, that we must include in our final plan. We will provide a summary of all changes between versions within our final plan submission. This document sits above a suite of documentation that provides the detailed evidence and justifications for our plan. We are submitting this to the RIIO-2 Challenge Group, our Customer Engagement Group, and Ofgem for review at this time, and will update and publish our annexes (subject to commercial sensitivity) with our final plan submission.

In Chapter 2 we begin with an overview of our approach to **co-creating of our business plan** through engagement, including the independent challenge provided by our Customer Engagement Group (CEG).

In Chapter 3 we summarise **our strategy for RIIO-ED2**, which we have built on the basis of three pillars, which are aligned to the nine priorities of our customers and stakeholders. We also outline the importance of Innovation and provide an overview of how our plans will ensure a just transition.

Chapter 4 is the most extensive section of the document, as here we detail our plans in line with each of our nine pillars. This follows the same structure as our RIIO-ED2 strategy, **using the three pillars and nine priorities** to discuss our plans. Under each priority, you will also see reference to our engagement and our **commitments.**

Chapter 5 provides a detailed breakdown of our **expenditure, how we will manage uncertainty, how we will embrace the regulatory framework, and our finance proposals.** We also summarise our proposals for **bespoke Output Delivery Incentives (ODIs)** and **Consumer Value Propositions (CVPs).**

In Chapter 6 and **Chapter 7** we describe **how we will deliver** our plan, and provide an overview of the **assurance and governance framework** that has underpinned our development of the plan.

In Chapter 8, we describe our strategy for **ongoing engagement,** to ensure that we embed stakeholder engagement throughout our journey in RIIO-ED2.

We end on some final words from our CEO and offer an invitation for you to #ChallengeOurPlan.

Engagement

↓

Our strategic pillars

Develop a network that's ready for Net Zero	Be the trusted partner for our customers, communities and stakeholders	Ready our business for a digital and sustainable future

↓

**9 customer and stakeholder priorities
87 detailed commitments**

Expenditure, regulatory framework, and finance proposals

↓

Over 80 Annexes

Over 120 Engineering Justification Papers (EJPs)

Over 100 Cost Benefit Analyses (CBAs)

Over 350 Business Plan Data Tables (BPDTs)

RIIO-ED1 track record – *primary outputs*

As part of our RIIO-ED1 business plan, we detailed three strategic anchors to deliver our objectives:

1. Getting closer to our customers, communities and stakeholders.

2. Creating a leading position in engineering and asset management.

3. Equipping our people with the skills they need for the future.

We set out over 90 outputs detailing what we would deliver, and how we would demonstrate performance. Throughout RIIO-ED1, we have remained true to our strategic anchors, and have measured our success, which we report on annually, as part of our Distribution Annual Performance Review.

During RIIO-ED1, our customers asked us to prioritise reducing the volume and duration of interruptions they experience. During 2019/20, we continued to deliver, reducing the Customer Minutes Lost compared with previous year's performance despite a period of significant storms and high winds. In 2019, we were awarded network of the Year at the Network Awards, and were a finalist in 2020 for record high performance, exceeding expectations and over delivering for customers and stakeholders.

At the start of RIIO-ED1, we set our self the goal of becoming the number 1 DNO for customer service and we achieved this in 2019/20. Since then, we have delivered continued year on year improvements in our customer service metrics, and intend to continue this success into RIIO-ED2.

In our environmental performance, despite the great number and range of policy changes proposed or published since we first developed our RIIO-ED1 strategy, the ambitious goals and objectives we originally set deliver the scale of change necessary to stay at the forefront of sustainable business. Underpinning our strategy is our annual Sustainability Plan, which outlines the improvement actions required to reduce our impact and meet our targets.

And finally, our delivery would not be possible without a strong and healthy workforce. We have continued our commitment to support jobs, and have recruited over 900 new colleagues from the communities we serve, including craft and engineering apprentices. We recognise the 'health' in health and safety and promote healthy living and wellbeing amongst our staff. Going beyond statutory requirements, we promote fitness and health as a lifestyle choice with initiatives such as the 'daily mile' lunchtime walks program. Mental health and wellbeing of our staff is also paramount, and we have established a mental health and wellbeing steering group, conducted a mental health survey and trained over 100 mental health first aiders.

We have outlined here a summary of our primary output successes, and you can read more in Annex 1.1: Track Record.

A summary of our primary output performance;

Safety	• Our commitment to safety goes far beyond legal requirement and places focus on public safety and education. • Our Total recordable incident rate in 19/20 was 0.28, vs. a target of <0.35. • We have received 0 HSE prohibition notices, and delivered 100% of our audit programme. • we invested in communicating the potential risk to the public of interacting with the electrical network, and work closely with industry to improve awareness of our network.
Reliability and availability	• Our customers remind us that reliability and availability is of the utmost importance, and we continue to outperform our stretching targets. • Customer minutes lost were less than 34 for both SPD and SPM in 2019/20, vs. target of 42 and 38 respectively. • Our Health index programme is being delivered well in advance of plan, over 86% and 73% after 5 years. • 99% of vulnerable customers experienced no supply interruptions or were restored within 6 hours in 2019/20.
Customer service	• Our customer satisfaction survey delivered 9.2 for SPD and SPM in 2019/20. • We benchmarked 1st against the Top 50 Companies in all UK service sectors in the Institute of Customer Service annual Customer Service Index Survey. • We were the first utilities organisation to achieved certification to the BSI Customer Service Kitemark TM and the Inclusive Service Verification scheme.
Environment	• In RIIO-ED1, we commenced our work to reach low carbon targets, and have already met some our 2023 goals, having met our 15% reduction target for 2023. • We have continued to successfully reduce SF_6 leakage. • Significantly reduced leakage from Fluid Filled Cables (from 9,315 litres in 2017/18 to 3,230 litres in 2019/20).
Connections	• In connections, our priorities have been faster connections, first class service, and facilitation of the competitive market. • We have outperformed our Time to quote targets in both SPD and SPM in 2019/20.

RIIO-ED1 track record – *expenditure*

During RIIO-ED1, we have demonstrated consistent strong performance in the delivery of our expenditure plans. Following a review of our plans at the mid-point of the price control, we are forecasting that we will need to spend slightly above allowance to ensure full delivery of our outputs, in order to ensure that deliver our primary outputs in line with our original business plan commitment.

We have delivered extensive savings against our original forecast. At the start of the price control period, we successfully negotiated competitive contracts for several of our high value programmes, such as rising and lateral mains and civil investment programmes. We have also commenced our digitalisation journey, establishing the platform for RIIO-ED2 by investing in our digital systems and realising savings through improving our processes and allowing us to redeploy personnel. We have however experienced upwards costs pressures which could not be avoided. Most notably from pensions and real wage increases for our workforce, from fault trends on our network which required intervention to ensure safety and resilience, and through continued upwards pressure on contractor and materials costs, which have been further exacerbated by the recent pandemic.

We continue to place our customers priorities at the forefront of our delivery, prioritising delivery of our contract in full and will not compromise on customer service, asset risk or network performance.

During RIIO-ED1, average customer bills have also fallen by 12% in SPD and 19% in SPM in real terms since the previous price control period.

RIIO-ED1 Totex forecasts (£ 12/13 prices)*

Legend: ■ Allowance ■ Forecast
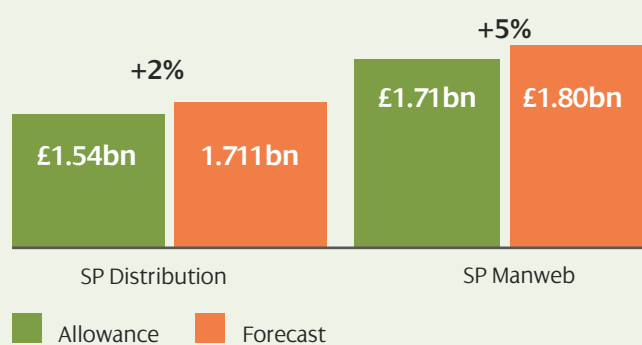
*As per our Regulatory Reporting Pack submission 2019/20

Average Domestic Customer Bill (£ 20/21 prices)

Legend: ■ Average DPCR5 ■ Average ED1
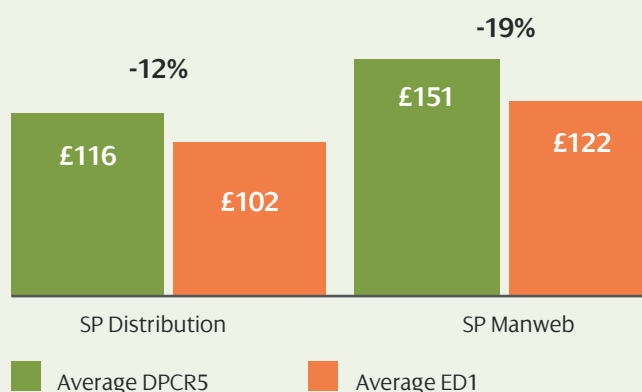
Performance and Dividend history

Recent dividends have included special dividends to ensure both company's gearing remains aligned with Ofgem's notional level of 65% in RIIO-ED1 and includes reimbursements to parent companies for pension deficit payments made on the company's behalf.

Operation Performance
RIIO-ED1

	SP Distribution		SP Manweb	
	National Gearing	Actual Gearing	National Gearing	Actual Gearing
Allowed Equity Return	6.0%	5.7%	6.0%	5.7%
IQI Penalty	-0.3%	-0.3%	-0.3%	-0.3%
Totex Performance	-0.4%	-0.4%	-1.0%	-0.9%
Outputs, Incentives and Innovation	1.5%	1.4%	0.8%	0.8%
Penalties and Fines	0.0%	0.0%	0.0%	0.0%
RORE – Operational Performance	6.8%	6.4%	5.5%	5.3%

Dividend History
RIIO-ED1   £m

	SP Distribution		SP Manweb	
	Share Capital	Dividend Payout	Share Capital	Dividend Payout
2020/21	300	92.9	300	73.0
2019/20	300	95.6	300	46.3
2018/19	300	72.0	300	96.7
2017/18	300	94.3	300	72.0
2016/17	300	69.0	300	26.0
2015/16	300	65.0	300	45.0

Co-creating our plan with customers and stakeholders

Building our plan for the future is not a journey we can do alone. We have engaged with a huge range of stakeholders to understand what they require both now and in the future. What is important to our customers and stakeholders is important to us, and their feedback shapes our business decisions.

Engagement is at the heart of our business plan and it is the views and preferences of our customers and stakeholders that have helped define the commitments we propose to deliver in the RIIO-ED2 period.

In this chapter

We provide an overview of how we have engaged with our customers to understand their needs and how we ensure that we are talking to the right customers.

We detail our four phased approach to our RIIO-ED2 engagement programme, to ensure we truly design a business plan around the needs of our customers and stakeholders.

We outline how we have sought deep insight, input and challenge to our plan through our Customer Engagement Group (CEG).

2

Putting our customers and stakeholders at the heart of our plans

We know that we need more than just a well researched strategy to meet the challenges that face us. That's why everything we've developed has been tested and built following engagement, insight and direction from our customers, stakeholders and communities.

We've engaged directly with more customers and stakeholders than at any other time in our history, to best understand their current and future needs, and to make sure the services we develop deliver maximum benefit for them. Real power comes in understanding where their priorities and ambitions lie, and this knowledge has been key to building the further blocks of our strategy and plans.

Building our engagement on a strong track record

We have a mature and proven strategy for effective stakeholder engagement. Now in its ninth year, it's updated annually to continuously improve our approach. It sets out how we engage with a simple, nine-step process, supported by appropriate tools and processes.

Our strategy builds on feedback from recognised experts, Ofgem, independent expert consultants, our Strategic Stakeholder Panels and Accountability – the owners of the global standard for stakeholder engagement. This strategy is a combination of industry best-practice, stakeholder and customer feedback, and years of our own experience delivering high-quality engagement.

Chapter 8 sets out our future Stakeholder Engagement Strategy, for the RIIO-ED2 period.

A direct influence on our strategy and priorities

Building on our strong track record of engagement in RIIO-ED1, and learning from other utility companies' business plans, we designed a best-in-class customer and stakeholder engagement approach to drive the development of this business plan.

Influenced by our ongoing engagement and the ever-changing environment in which we operate, each stage of the development of our plan was guided by specific and actionable feedback.

Stakeholder and customer feedback was triangulated with other evidence like cost-benefit-analyses to form a 'golden thread' that runs through our business plan. This thread links the priorities of our customers and stakeholders to our commitments and the benefits these will deliver for society.

Talking to the right stakeholders

In line with our longstanding engagement strategy we seek to gather insight from those who are best placed to provide informed, specific, and unambiguous feedback.

For each topic area in our plan, we started by reviewing our existing stakeholder contacts registered in our stakeholder database. This provided an excellent foundation and ensured we captured those stakeholders who we have ongoing engagement with on a 'business as usual' basis. This was important as we already have strong partnerships with key stakeholders with a high level of topic-specific knowledge, who were able to bring expert insight to our RIIO-ED2 engagement.

We then performed an extensive gap analysis, utilising the STEER (Social, Technologic, Economic, Environmental and Regulatory) method, reviewing the geographical spread to make sure we had solid representation across Wales, Scotland and England. We then benchmarked our list against those engaged by other UK utilitiesand those mapped as part of our RIIO-T2 engagement.

Any gaps were closed by performing bespoke desktop research, using subject matter experts and challenge from internal colleagues.

Finally, we placed stakeholder groups on a matrix based on their levels of influence and interest. The resulting heat maps helped us to target out engagement appropriately. Once we had this for each topic area, we shared the resulting maps and full stakeholder list with our Customer Engagement Group for further feedback.

"With a systematic and robust approach we want to understand the needs and priorities of those we serve, and make sure their priorities drive our commitments and the benefits these will deliver for society as a whole, leaving no one behind."

we've engaged over

15,000 customers and stakeholders so far

Understanding our customers

Before we asked customers and stakeholders what we should deliver in RIIO-ED2 and beyond, we identified a need to better understand and categorise our customer base. In 2020 we embarked on a significant programme to identify the attitudinal behaviours of our customers, both domestic and commercial. We used this information to create customer segments. Behind each segment lies a series of characteristics that make that segment unique. These form the foundation of a customised approach to obtaining a better understanding of our entire customer base, which then leads to better outcomes. This research was built into our four-phase engagement programme you'll read about on the next pages.

To complete our segmentation exercise, we engaged a representative sample of 3,097 domestic and commercial customers.

3,097

Domestic customer segmentation

Cost is king
"Help me find ways of saving money and avoid waste"

Go with the flow
"Take the lead and make it easy for me to make small changes in my life"

Unplugged
"Keep the power on and be there for me in an emergency"

Seen to be green
"Keep me up-to-date and 'in the know' so that I can try and do the right thing"

19%
10%
11%
20%
13%
9%
17%

We identified seven different attitudinal segments or 'mindsets'. These are based on the level of engagement customers have with the energy landscape and how active they are in managing their own household energy.

Careful and caring
"Support me in trying to make a difference to my life and others in my community"

Control seekers
"Help me feel more in control around my current and future energy usage/footprint"

Actively Green
"Inform and empower me to make an even bigger postive environmental impact"

Commercial customer segmentation

Silent partner
"Keep the power on"

Deal seekers
"Help me optimise energy efficiency and get the best deal"

Energy experts
"Partner with me"   <1%

17%
19%
34%
30%

We identified five different attitudinal segments or 'mindsets' based on the level of engagement customers have with energy as a business lever, and the level of importance they place on how they use and manage it.

Hoping to harness
"Make it easy and help them control their energy and save money"

Open for business
"Support them and their businesses"

Our phased approach to engagement

To make sure our engagement and insight is robust and representative of the views of our customers and stakeholders on every aspect of our plan, we created an approach to research and engagement through four defined phases.

Each of these phases have been guided by a comprehensive engagement plan that matches specific areas of engagement to the most appropriate groups of customers and stakeholders – via tailored methods.

Whenever possible, engagement was delivered by the teams building our business plan proposals.

From the beginning, our project team made sure that the needs of customers and stakeholders actively shaped the commitments we plan to deliver.

Our approach

1	Identifying Priorities	*What are the overarching outcomes that our customers' and stakeholders want us to deliver in the coming years?*
2	Exploring Needs	*What are the specific needs and preferences of customers and stakeholders that we need address in RIIO-ED2?*
3	Testing Commitments	*Will the proposed commitments deliver the needs and preferences of our communities and, in turn, deliver the outcomes they expect from SPEN?*
4	Acceptability Testing	*Do our customers and stakeholders accept the commitments we propose to deliver over RIIO-ED2?*

Stakeholder-centric RIIO-ED2 plan that customers are willing to pay for

An overview of our engagement activities so far

Engagement Phase	What did we engage on?	Who did we engage?	Number of customers/stakeholders	
Phase 1: Priorities and Ambition	Customers' priorities and ambition	Representative sample of domestic and commercial customers	**1,550**	*through in-depth interviews and qualitive engagement methods*
	Stakeholder priorities gathered across various surveys	Key expert stakeholder groups including: *Local Government, Academia, Charity, Transport, Renewable Developers, Water, Construction, Government, Suppliers, Aggregators, Community Groups and more*	**91**	*expert stakeholders through in-depth stakeholder surveys*
Phase 2: Needs and Preferences	Detailed engagement on customer needs and preferences	Customer groups engaged: Domestic customers (including vulnerable customers), small businesses, large businesses, UMS and generators	**5,450**	*through in-depth interviews and qualitive engagement methods*
	Detailed engagement on stakeholder needs and preferences	Key expert stakeholder groups including: *Local Government, Academia, Charity, Transport, Renewable Developers, Water, Construction, Government, Suppliers, Aggregators, Community Groups and more*	**332**	*expert stakeholders through workshops and surveys*
Phase 3: Testing proposals	Testing proposals, service levels, ambition, willingness to pay and affordability	Representative sample of domestic and commercial customers	**4,324**	*customers through workshops and surveys*
	Detailed engagement on draft commitments	Key expert stakeholder groups including: *Local Government, Academia, Charity, Transport, Renewable Developers, Water, Construction, Government, Suppliers, Aggregators, Community Groups and more*	**750**	*expert stakeholders, through facilitated workshops, surveys and bilaterals*
Phase 4: Acceptability	Overall acceptability of the plan	Testing final proposals and acceptability of the final overall bill with customers and stakeholders		*from July 2021*

Phase 1
Understanding what customers and stakeholders want

In the first phase of our RIIO-ED2 engagement programme, we set out to identify the overarching priorities of our customers and stakeholders. This tells us the outcomes that they care about the most and, as a result, drives our ambition across every part of our plan.

We tested a broad set of priorities covering all the key functions that we deliver now, and will do in the future, as part of our role as a Distribution Network Operator. The priority set was shaped by subject experts, our prior engagement in RIIO-ED1, regulatory guidance, and government objectives at a national and local level.

We used two primary research methods:

- Customers were asked to assign the importance of each individual priority from 0 (less important) to 10 (very important) as well as to pick their top five priorities. This was used to identify the ranking of priorities.

- We presented our customers with several 'packages' consisting of different priorities and ranges of service levels to assess the level of ambition our customers would support.

We also gathered the views of expert stakeholders from 26 stakeholder categories on the priorities that should guide our investments, strategies and actions over the RIIO-ED2 period and beyond. This included categories as diverse as academic institutions, emergency services, other utility sectors, community interest groups, government, media, landowners and supply chain. This provided us with a consolidated view of what is important for us to address in our plans. To make sure we understand how this relates to our strategic goals, we mapped each priority to our RIIO-ED2 strategic pillars, which we discuss in more detail in chapter 3.

Our customer and stakeholder priorities

Develop a network that's ready for Net Zero

Develop the network of the future

Ensure a safe and reliable electricity supply

Provide timely and efficient connections to support Net Zero ambitions

Be a trusted partner for our customer, communities and stakeholders

Deliver excellent satisfaction and enhanced services for all customers

Support vulnerable customers and communities to ensure no-one is left behind

Work with our customers and communities to facilitate the energy system transition

Ready our business for a digital and sustainable

Support an environmentally sustainable network

Embed digitalisation and utilise data to unlock benefits for customers and stakeholders

Promote an inclusive, skilled and community based workforce

Phase 2
Determine our outputs

Phase 2 sought to delve into the specific needs and preferences of customers and stakeholders across all aspects of our business, from customer services to our sustainability practices. Properly identifying these needs has allowed us to develop a targeted set of commitments to best serve our customers and stakeholders throughout the energy system transition.

Our engagement efforts with stakeholders were facilitated by bespoke engagement plans based on questions designed by engagement experts and our Subject Matter Experts (SMEs) to extract specific, unambiguous and actionable feedback. Each question was preceded by content that helped our stakeholders provide informed and educated feedback. We engaged stakeholders across 14 online workshops, complemented by surveys to extend our reach further. These were designed to maximise our stakeholders' ability to engage at a challenging time.

Our customer engagement involved over 5,000 customers recruited from a vast range of groups to capture a representative sample of the communities we serve. These customers were reached through a variety of channels to ensure that all groups were equally able to make their voice heard; for example, those unable to engage via digital means were reached in person, consistent with social distancing measures. Among the channels adopted, we introduced innovative approaches to engage future customers about their needs and preferences. The 'Future Spark' project saw students at the University of Strathclyde engage with SPEN in a gamified format.

Building on the priorities and the specific needs expressed by our customers and stakeholders in Phases 1 and 2, our SMEs designed a set of draft commitments. These commitments were directly shaped by the feedback we gathered but also reflected other sources of evidence, such as Engineering Justification Papers, through a process of triangulation.

Phase 3
Determine service levels

The objective of Phase 3 was to assess whether the commitments we proposed, and their level of ambition, effectively met the needs and priorities of customers and stakeholders while ultimately delivering the outcomes they prioritise. In doing so, we tested our commitments in events with expert stakeholders. We also engaged a representative sample of customers to assess their willingness to pay for our proposed commitments while also testing the affordability of the proposed changes.

As part of this research, we provided our customers with a clear picture of the distribution portion their bill that they can impact with their feedback at this stage. To ensure that our customers could provide informed views, we packaged the commitments in a set of simplified statements. These were tested with customers in qualitative sessions to ensure they properly reflected the true commitments.

Our multi-pronged engagement gave us the confidence that our customers and stakeholders support the commitments we proposed and that these facilitate broader outcomes of societal interest such as the energy system transition. You can find more information on our proposals and see how they were shaped by insight from customers and stakeholders throughout Chapter 4.

Triangulation of feedback

Not all consumers, network users and stakeholders have the same needs, priorities and opinions. Throughout the RIIO-ED2 engagement programme we have consistently 'triangulated' the feedback gathered to gain a comprehensive picture of their feedback. This method involves combining our research, stakeholder questioning and collation of feedback to ensure we avoid any biases and provides us with a more credible, robust and balanced view from our customers and stakeholders. It serves to provide data from different aspects of our strategic topics and gives us confidence in our business planning and desired outcomes.

Using multiple and independent pieces of data, this process allowed us to refine our initial ideas into a set of clear commitments focused on addressing the needs of all our customers and stakeholders.

The primary objective of the triangulation process was to build a complete picture of our customers' and stakeholders' needs across all groups and segments. Once constructed, this picture was used by decision makers along with other key pieces of evidence, such as CBAs and Engineering Justification Papers, to define deliverable and ambitious commitments to deliver the outcomes needed by our communities.

What did our customers and stakeholders say?

You'll see the results of our customer and stakeholder engagement in each of our strategic priorities, summarised throughout Chapter 4 of our plan.

Each area of the plan, our core strategies and all of our commitments are built upon these insights.

For more information on our consumer research and stakeholder engagement, please see Annex 2.1: Stakeholder Engagement, and Annex 2.2: Consumer Research.

You can also find the full detail of what our customers and stakeholders said in our Synthesis Reports (Annexes 2.1a and 2.1b) and we have also included a full, comprehensive record showing the golden thread of the development of each commitment through multiple phases of engagement in our Triangulation Records (Annexes 2.1c – 2.1m).

Next steps

Phase 4
Customer acceptance and willingness to pay

This phase will take place between our draft and final plan submission.

The final phase of engagement will take place before we submit our final business plan in December 2021. In this phase, we will seek to test the acceptability of the final, costed commitments with our customers and stakeholders. Phase 4 will also give us an opportunity to test any changes to aspects of our plan driven by the feedback of independent challenge groups on this draft business plan.

In line with other phases of the engagement programme, we will undertake separate engagement with customers and stakeholders. We will seek to engage a representative sample of customers (e.g. domestic, commercial, as well as those in specific circumstances) in a range of online and more traditional methods to ensure a broad and inclusive representation of customer groups. We will also engage key stakeholders to test the acceptability of the final commitments through methods including online consultations, surveys and bilaterals.

The specific methodology for this phase will take into consideration the latest government advice on COVID-related restrictions across England, Scotland and Wales.

Independent Challenge

Scrutiny plays an important part in driving our plan's authenticity. As such, we have sought deep insight, input and challenge to our plan through our Customer Engagement Group (CEG) and through our engagement with Ofgem's RIIO-2 Challenge Group.

Number of meetings since establishment; 27 main CEG meetings and 36 sub-group meetings

63

Formal meeting hours with our teams

150+

Actions, challenges and feedback submitted

c.600

Number of senior managers who have presented to CEG, including six Directors

40+

Our Customer Engagement Group

Chaired and operated independently, the CEG is completely separate from our business and Ofgem – offering us a unique perspective on our plan. It comprises industry experts who provide valuable external examination of our plans to assess if we're adequately addressing the needs and preferences of our customers and stakeholders.

The CEG plays a crucial role in scrutinising our engagement process and ensuring our business plan is robust by challenging its priorities and understanding of the changes occurring within every level in the energy industry. It also reviews our investment proposals and innovation strategies, future network requirements and the support available for vulnerable customers.

The CEG meets with us regularly – with 63 meetings so far between the full CEG and topic-specific sub-groups – to review and challenge the development of our business plan at each stage in the process.

Our RIIO-ED2 project team has an open working relationship with the CEG who can scrutinise our proposals at every stage of the process, concentrating on eight key focus areas:

- *Overall priorities and approach*
- *Our proposed outputs and associated total expenditure*
- *The quality of stakeholder engagement we have undertaken*
- *The approach and support provided to vulnerable consumers*
- *Our approach to innovation*
- *Consideration of different scenarios*
- *Alternatives to investment proposals*
- *Understanding of local issues of relevance to a particular region.*

Members of the group

The group is made up of nine stakeholders from a range of industries and organisations across our SPM and SPD licence areas.

All members have a strong track-record of demonstrating leadership at a senior level and a proven ability to challenge opinions, assumptions and vision. In addition to the core membership, the group is also supported by three Special Advisors, who provide ad-hoc advice and input on their particular area of expertise.

John Howard, Customer Engagement Group Chair

John has a distinguished 20-year career in regulated industries and consumer affairs. A qualified solicitor, John joined the BBC, becoming an award-winning consumer journalist. He has been a member of the Board of Energywatch and was non-executive director at Ofgem for nine years. During that time, he was a member of the RIIO-ED1 Price Control Committee and member of the 2015 Challenge Panel.

John has considerable knowledge in chairing high profile panels and groups, such as the Financial Conduct Authority's Consumer Panel and the Transparency Task Force. He was Vice Chair of the Family Building Society and independent member of both the Independent Governance Committee and the With Profits Committee of Scottish Widows. He has also been a non-executive director of the Financial Services Ombudsman and a Trustee of the Thalidomide Trust.

John is presently a director of Banking Competition Remedies Ltd and an independent consultant advising clients on regulation in financial services, energy and water.

As chair of the CEG, John ensures wholly independent challenge, ensuring high standards of consumer and stakeholder engagement have been carried out to fully inform our business plans in the fairest and broadest way. John is passionate about ensuring the best outcomes are delivered for consumers, and how the transition to a zero-carbon economy is fair for everyone and that our approach protects both vulnerable and fuel poor customers.

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Meet the team

Following an extensive recruitment process, this highly experienced, and diverse group of independent industry experts were selected and appointed by CEG Chair, John Howard. Our CEG has provided us with challenge across our plan throughout its development.

Andy Billcliff
With specialist knowledge in renewable energy and community engagement, Andy is a former director of UK Hydropower at RWE Innogy who brings a wealth of experience in thermal, hydro, marine and wind generation.

Chris Clark
As Director of one of the UK's largest commercial solar contracting businesses, Chris is at the forefront of the renewable energy industry, particularly innovation and low carbon technologies. He is a previous Chair of the Scottish Solar Trade Association and remains a board member of the UK Solar Trade Association.

Matthew Cole
A consumer champion with extensive experience within the energy industry, Matthew drives innovative and unique outcomes for vulnerable customers. He now leads the independent Fuel Bank Foundation charity and is Independent Chair of the Energy Switch Guarantee.

Sam Ghibaldan
An experienced consumer advocate and currently the Director of the Customer Forum for Water, Sam brings expertise and challenge on how the energy industry can achieve long-term objectives including Net Zero in a way that is fair, sustainable and meets the needs of customers.

Dr Matthew Hannon
Director of Research and Senior Lecturer at the Hunter Centre for Entrepreneurship, Matthew specialises in low-carbon energy technology and business model innovation. Matthew brings specialist knowledge of low carbon technologies, customer segmentation, research and engagement.

Teresa Perchard
With over 30 years experience of consumer affairs policy and advocacy in a number of markets, including as board member of the Utility Regulator for Northern Ireland and Director of Policy and Advocacy at Citizens Advice, Teresa brings immeasurable experience to provide challenge on our engagement and ensure the voices of our consumers are heard and addressed.

Benny Talbot
Specialising in local supply, energy flexibility and community engagement, Benny is Innovation Manager for Community Energy Scotland. With six years of working with community owned renewable generators across Scotland, Benny brings a true understanding of the challenges created by rapid decarbonisation, and potential solutions emerging from smart technology embodied in the DSO transition.

Professor Janette Webb
Edinburgh University Professor of Sociology, Co-Director of the UK Energy Research Centre, and member of UK Research and Innovation (UKRI) Energy Scientific Advisory Committee, Janettes's research covers European policy for sustainable heat and low energy buildings. With extensive experience across a range of sectors, Janette has provided valuable challenge on our customer engagement programme, considering issues from a whole systems perspective.

Gillian Wood
An experienced councillor for Claughton and Noctorum of Wirral Metropolitan Borough Council, Gill also holds the position of Deputy Portfolio Holder: Low Carbon and Renewable Energy – for the Liverpool City Region Combined Authority. Passionate about decarbonisation and closely connected to numerous grass root projects, Gill brings a wealth of knowledge on community needs.

Jennifer Pride (Special Advisor to CEG)
Having led in a number of roles in Welsh Government including climate change, sustainable development, resource efficiency and distributed generation. Jennifer now leads on energy policy, focusing on enabling the low carbon distributed energy system in Wales.

Andrew Wright (Special Advisor to CEG)
Andrew Wright is an independent energy consultant and former Senior Partner in Energy Systems at Ofgem. Andrew brings 30 years of experience of the gas and electricity sector.

Professor David Flynn (Special Advisor to CEG)
David is Professor of Smart Systems at Heriot-Watt University, is founder of the University's Smart Systems Group (SSG) and is Associate Director of the UKs National Centre for Energy Systems Integration and Centre for Doctoral Training in Embedded Intelligence.

Kankana Dubey (Report Writer)
Kankana is an experienced researcher with interests spanning many aspects of energy generation and consumption, economic diversification, energy productivity, and socioeconomic well-being.

John Howard, CEG Chair

"I am very pleased that we have been able to assemble such an impressive group of experts to take on this important work."

Our strategy and ambition for RIIO-ED2

As described in Chapter 2, we've engaged thousands of customers and stakeholders on a vast range of topics ranging from engineering to consumer vulnerability. We've used all of our engagement to help us develop not only our priorities and commitments, but to build our core RIIO-ED2 strategy that guides us in everything we do. In short, everything we've done is designed to meet the needs of our communities, now and in the future.

In this chapter

We summarise our strategy for RIIO-ED2, with the three pillars upon which this plan is built and how these align with the priorities which our customers and stakeholders have told us are important to them.

For each of our three pillars, we then outline our approach and summary commitments for RIIO-ED2. These are discussed in much more detail in Chapter 4.

Lastly, we summarise two key topics that are weaved throughout our plan – our approach to innovation, and our draft strategy to support a just transition, supporting our communities through the low carbon transition.

3

Our RIIO-ED2 Strategy

We have an ambitious plan for RIIO-ED2, and here we summarise our overarching strategy that we have shaped in response to the priorities of our customers and stakeholders. These priorities have been aligned to three pillars, which provide a consistent focus to our plan and enable us to deliver our ambitious agenda. To support this framework, we have a future vision for our business which articulates the role we must play in RIIO-ED2 and beyond. We will:

"Work with the communities we serve to enable a just transition to our Net Zero future"

Our RIIO-ED2 strategic pillars and priorities

Develop a network that's ready for Net Zero

Develop the network of the future

Ensure a safe and reliable electricity supply

Provide timely and efficient connections

Be the trusted partner for customers, communities and stakeholders

Deliver excellent satisfaction and enhanced services for all customers

Support vulnerable customers and communities to ensure no-one is left behind

Work with our communities to facilitate the energy system transition

Ready our business for a digital and sustainable future

Support an environmentally Sustainable Network

Promote an inclusive, skilled and community based workforce

Embed digitalisation and utilise data to unlock benefits for customers and stakeholders

Develop a network that's ready for Net Zero

To help our customers in the move to Net Zero, we need to develop a network that is ready for the changes that are coming. Our Distribution Future Energy Scenarios forecast a leap in low carbon technologies connected to our networks. This will push our system beyond what it was originally designed for. We need to operate a safe, reliable, and efficient network while managing greater levels of uncertainty, complexity and risk. By developing our planning capabilities, evolving our Distribution System Operator (DSO) infrastructure, and using a toolkit of solutions and 'whole system' thinking, we will deliver the right solution at the right time.

We will develop the network of the future

We will plan and develop our networks to meet our current and future consumers' needs as we move towards Net Zero. We will ensure customers can connect their low carbon technologies (LCTs) by planning to 'touch the network once' when we invest, and sizing assets to accommodate future needs. We will do this by installing over 700 smart-substations, 800km of cable, including 43,000 upgraded cables in customer properties.

We will unlock network capacity using an efficient balance of interventions to release over 1,000MW of additional capacity and enable the connection of up to 5GW of low carbon generation. For the 'last mile' of our Low Voltage networks, where we expect the most significant changes to happen, we will deploy 14,100 LV network monitors and enhance our use of smart meter data to maximise network utilisation and target interventions.

The transition to a Distribution System Operator (DSO) model is critical to managing our network as power flows become more dynamic. This will be enabled by new network monitoring and control infrastructure, commercial solutions, and planning and collaboration with stakeholders. We will be a neutral facilitator of an open and accessible flexibility services market and we will share data with customers, stakeholders, and market participants through our systems and an online data portal.

Building on our track record in RIIO-ED1, we will expand our 'whole systems' approach through collaboration with stakeholders, focusing on where we can deliver enhanced support to local authorities in the development of strategic decarbonisation planning.

We have **8 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in chapter 4A.1, and we have structured these under the summarised commitments below:**

NZ1 We will enable the connection of low carbon technologies on our network through a mix of flexible, smart, and reinforcement solutions. By managing capacity on our network our current and future customers will retain choice on the time and scale of their technology use.

NZ2 We will deliver £84m of savings for our customers in RIIO-ED2 by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials.

NZ3 We will facilitate a neutral market for flexibility and embed whole systems thinking through our evolving Distribution System Operator role.

Discover how we're meeting Ofgem's requirements:

Annex 4A.3: DSO Strategy

Annex 4A.26: Whole System Strategy

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We will will ensure a safe and reliable electricity supply

Our networks are safer and more resilient than ever, and we plan to build on this strong foundation for RIIO-ED2. During RIIO-ED2 we will employ innovative techniques and best practice to reduce public safety risk, such as replacing over 4,000 of our poorest condition Low Voltage (LV) assets in public areas and using LiDAR surveys of our overhead line networks, building on our industry-leading programme to ensure safe height clearances.

Our customers will also benefit from increased levels of reliability during RIIO-ED2. We will reduce asset deterioration across our asset base through optimised interventions and improve reliability, ensuring that customers will be 15% less likely to experience a power cut on average, with the duration reducing by 10% when this does happen. Going further, we will improve service for over 2,400 of our 'Worst Served Customers' through delivery of 45 dedicated network performance schemes.

We will also build on our track record of public safety in high-density residential buildings. We will safeguard a further 70,000 residents of flats and tenements through proactive replacement of shared internal wiring, known as rising and lateral LV mains.

We will also enhance our network assets to be more resilient to the potential impacts of climate change, and the emerging security risks that we face.

We have **10 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in Chapter 4A.2, and we have structured these under the summarised commitments below:**

NZ4	We will improve the safety of our network and business operations for our staff, customers, and communities through an ambitious programme of modernisation for assets in poor condition and increasing site security.
NZ5	We will Invest in our network to increase its reliability such that customers will be 15% less likely to experience an interruption and the average duration reduced by 10%.
NZ6	We will increase the resilience of our network to withstand extreme weather events such as storms and floods.

Discover how we're meeting Ofgem's requirements:

Annex 4A.4: Network Asset Risk Strategy

Annex 4A.7: Climate Resilience Strategy

We will provide timely and efficient connections

Our Distribution Future Energy Scenarios predict significant uptake of low carbon technologies in the future. This will result in a large increase in the number of customers – both domestic and commercial – that will seek a new or upgraded connection to our network. Although volumes will increase, we must provide all our connection customers with consistently high standards of service.

That's why our enhanced connections strategy for RIIO-ED2 is founded upon simplification, self-service, and efficiency. We have developed several initiatives to deliver an ambitious, customer-centric approach to connections. In quotations, we will improve the customer experience by offering pre-quotation consultations and nominated points of contact for higher value or volume customers. In design and delivery, we will offer a choice of firm or flexible connection options where these apply, and progressively improve delivery timescales year-on-year. And through digital innovations to support these commitments, we will realise c£15m of benefits for our customers through reduced charges.

We have **6 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in Chapter 4A.3, and we have structured these under the summarised commitments below:**

NZ7	We will improve the connections quotation experience we provide our customers by offering 100% of customers a pre-quotation consultation and ensuring those customers who request 30 or more quotations a year or have a project exceeding £1m have a dedicated point of contact
NZ8	We will offer 80% of HV and EHV customers the choice of a firm and a flexible connection where a known constraint exists
NZ9	We will deliver an exemplary major connections service through the use of digital innovations to continuously improve our speed of quotation and delivery

Discover how we're meeting Ofgem's requirements:

Annex 4A.28: Connections Strategy

A quote from one of our stakeholders

"Understanding customers' needs has always been one of SPEN's core values and I look forward to working closely with the team as we head towards a Net Zero future."

Be the trusted partner for our customers, communities and stakeholders

Our customers, communities and stakeholders are at the heart of everything we do. In RIIO-ED2, we need to respond to their changing needs as we move towards Net Zero. Using our success in RIIO-ED1 as the foundation, we will deliver exceptional service, support our most vulnerable customers, and take on a more proactive role in our communities. We will be a partner that supports the journey to Net Zero, bridging the gap from ambition to action where we can, to ensure that we leave no-one behind in the energy transition.

We will deliver excellent satisfaction and enhanced services for all customers

We pride ourselves on delivering excellent service for our customers. We will build on our success in RIIO-ED1 to set new standards in the service and support that we provide to our customers in RIIO-ED2. Net Zero will bring changes to how and when customers will need to engage with us, so we will be more proactive to help them navigate an increasingly complex landscape.

We are making a step change in the breadth and depth of our customer satisfaction commitments in RIIO-ED2. We will ramp up our advisory services for all of our customers and offer a range of services to reduce household or business costs, drive efficiency and increase access to the benefits of the low carbon transition. We will use a blend of solutions, from digital to personal interaction, to ensure our support is tailored to the customer's needs.

We will do all this while challenging ourselves to deliver consistently leading performance measures across our sector and wider industry.

We have **18 detailed commitments in this area that we have tested with customers and stakeholders. All of these commitments are detailed in Chapter 4B.1, and we have structured these under the summarised commitments below:**

TP1	We will deliver a proactive, tailored customer contact process through enhanced methods to ensure fast response times. We will always contact them in a language and channel of their choosing providing greater levels of information, and reliably delivering services
TP2	We recognise power outages as one of the highest customer priorities and will provide customers with improved support and response before, during and after either planned or unplanned occurrences with an enhanced approach for our most vulnerable and at-risk customers
TP3	We will help customers capitalise on the benefits of the energy transition by delivering advice services to 40,000 customers who register with us to help reduce costs, drive efficiency and access the benefits of low carbon technologies

Discover how we're meeting Ofgem's requirements:

Annex 4B.2: Customer Service Strategy

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We will support vulnerable customers and communities to ensure no-one is left behind

Providing support to our vulnerable customers is a core part of our service. Vulnerability is a complex and changing picture, and the low carbon transition will bring new challenges and risks to many of the most vulnerable.

In RIIO-ED2 we will enhance our vital role in this area. We will broaden our view of vulnerability and enhance the data that we use, so that we can target new and more specific support to those that need it most. This will be supported by coalitions and partnerships, centered around our vulnerable customers' needs.

We will deliver support services to over 272,000 customers during RIIO-ED2, as part of our drive to ensure that no-one is left behind in the low carbon transition.

We have **13 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in chapter 4B.2, and we have structured these under the summarised commitments below:**

TP4	We will re-define vulnerable and high-risk customers, and how we reach them, to better target and tailor the services we provide to these groups
TP5	We will deliver comprehensive support to our customers most in need throughout the energy transition in close partnership with social landlords, local authorities, and technology companies
TP6	We will ensure a stronger voice for our customers, stakeholders and communities throughout ED2 by continually listening and acting upon the views and needs through an increased range of methods and tools that are internationally recognised as best practice to drive impactful and inclusive engagement

Discover how we're meeting Ofgem's requirements:

Annex 4B.1: Vulnerability Strategy
Annex 8.1: Future Stakeholder Engagement Strategy

We will work with stakeholders to facilitate the energy system transition

We want to empower our communities so that they can lead the way in the energy system transition. We're committed to supporting local solutions to decarbonisation, with an opportunity in RIIO-ED2 to redefine our role in how we engage and support our stakeholders and communities to create energy solutions that bring benefits at the grassroots level.

We will deliver a new community energy strategy in RIIO-ED2 that we have developed in close collaboration with stakeholders. We aim to support community-level action on generation, demand, heating, storage and transport. This will help to close the gap and

Building on our successful pilots, we propose to set up a £30m Net Zero Fund in RIIO-ED2 to support innovative, low-carbon project proposals from our communities. This will create jobs, reduce carbon emissions, and remove barriers to low carbon technologies for our communities. These initiatives will help us to support a Just Transition.

We have **7 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in chapter 4B.3, and we have structured these under the summarised commitments below:**

TP7	We will help our customers and local communities understand the energy landscape, and the facts and opportunities of the energy transition through a tailored awareness campaign
TP8	We will support our communities develop their community energy ambitions through strategic planning and partnership working and the provision of technical advice, optioneering and sign-posting
TP9	We will create a £30m Distribution Net Zero Fund to facilitate low-carbon projects, aligned to Scotland, Wales and the UK's Net Zero aims, whilst supporting our cities, towns and local communities' ambitions

Discover how we're meeting Ofgem's requirements:

Annex 2.1: Stakeholder Engagement
Annex 8.1: Future Stakeholder Engagement Strategy
Annex 4B.3: Community Energy Strategy

Our ongoing engagement strategy during RIIO-ED2

As we share the journey to Net Zero, it is more important than ever that we continue to engage with our customers and stakeholders during RIIO-ED2. To be the trusted partner and deliver a business that meets their needs, we will engage on the topics that matter most to them and embed their feedback in our decision making. We discuss our approach to our ongoing engagement strategy in chapter 8A.

A quote from one of our stakeholders

"I feel the (customer service) mission statement captures the ambition needed for the RIIO-ED2 period which will be a vital time for preparing the network for Net Zero, while balancing the wider needs of customers."

Ready our business for a digital and sustainable future

We see significant change and disruption in the external environment, and in RIIO-ED2 we will reflect this ambition and opportunity in our own organisation. This will impact the core of our business; reducing the carbon footprint from our activities; increasing the strength and diversity of our workforce; enhancing our digital capabilities. We will be a business that leads by example and takes this opportunity to re-shape how we do business. Embracing this rapid change is how we can capitalise on new opportunities, building a business that is ready for the future.
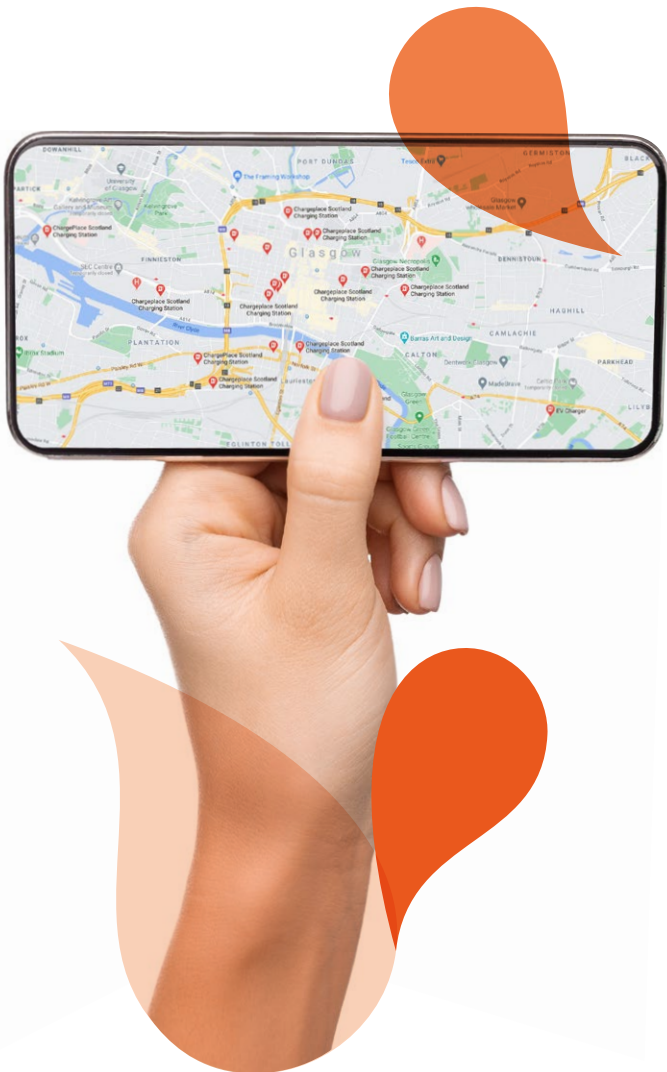
We will support an environmentally sustainable network

We play a critical role in enabling the UK's ambitious climate change targets. In response, our plans for environmental sustainability are more ambitious than ever before. We must reduce our own environmental impacts and constantly seek innovative solutions, delivering sustainable value for our current and future consumers.

We will achieve a step-change in environmental sustainability during RIIO-ED2. We'll fully embed environmental considerations and sustainability principles into our decision making, innovation, operations, supply chain and collaboration with stakeholders. We will also be open on our progress, and publish an annual report on all of our commitments in this area.

At the centre of this will be our own Net Zero target. We will deliver efficient and economic actions to reduce our Scope 1 & 2 business carbon footprint by 38%, in line with a verified Science-Based Target, and will set a voluntary Scope 3 Science-Based Target. Ultimately, we aim to achieve Net Zero Carbon by 2040.

We have **10 detailed commitments in this area that we have tested with customers and stakeholders. All of these commitments are detailed in chapter 4C.1, and we have structured these under the summarised commitments below:**

DS1	We will decarbonise our network, its assets and our business operations such that we achieve Net Zero Carbon by 2040, achieving 80% of our target by 2030
DS2	We will reduce our impact on the natural environment and promote biodiversity across our licence areas through enhanced plans, standards and systems within our business and our supply chain
DS3	We will place sustainability in its broadest sense at the heart of everything we do, to deliver social and economic returns and a just transition

Discover how we're meeting Ofgem's requirements:

Annex 4C.3: Environmental Action Plan

We will promote an inclusive, skilled and community-based workforce

To deliver our ambitious plans we will need a sustainable, resilient workforce that can adapt quickly to the changing demands of the future.

We will directly recruit for 1,100 jobs during RIIO-ED2, 400 of which are new roles from the communities that we serve. We will aim to 'grow our own' talent, where 90% of our craft roles and 50% of our engineering and technical roles come from our training programmes. We will also continue to broaden our scope of skills, expanding our graduate policies to focus on digital talent and embed environmental sustainability in the roles of our managers and leaders.

We will build a truly healthy, diverse and inclusive workforce through our recruitment, training and staff support programmes. We will also simplify and enhance our family friendly policies in line with our commitment to be an inclusive employer.

Through engagement with our workforce, we will continue our commitment to safeguarding physical and mental health, such as increasing the number of mental health first aiders to match the 1:25 standard established for First Aiders.

We have **5 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in chapter 4C.2, and we have structured these under the summarised commitments below:**

DS4	We will grow our own talent from the communities we serve through a blended approach of inclusive workforce renewal, up-skilling and direct recruitment, recognising the scale and timing of the increase in workforce and new skills
DS5	We will build a truly healthy, diverse and inclusive workforce through our recruitment, training and staff support programmes
DS6	We will ensure our current and future workforce benefits from new and enhanced capabilities, to provide them with the necessary skills for the future

Discover how we're meeting Ofgem's requirements:

Annex 4C.4: Workforce Resilience Strategy

We will embed digitalisation and utilise data to unlock benefits for customers and stakeholders

Digitalisation and the better use of data are critical for the delivery of our RIIO-ED2 business plan and the overall de-carbonisation of our energy system. They'll help us deliver a more modern, digitalised energy system that facilitates a fair transition which represents value for money for our customers.

We will invest to maintain and enhance our existing platforms, and have developed an ambitious programme of digital initiatives to transform our business and facilitate the delivery of our RIIO-ED2 ambitions.

Evolutionary change will not be enough. To deliver the business transformation required, we will need new skills in an environment where the value of data is truly recognised, and treated as an asset in its own right. To build on the digitalisation of our network, we will make our business more transparent – sharing 'open data' with our partners and stakeholders and create a "digital first" culture – using technology to automate and speed up our processes.

We have **3 detailed commitments** in this area that we have tested with customers and stakeholders. **All of these commitments are detailed in chapter 4C.3, and we have structured these under the summarised commitments below:**

DS7	We will transform our customers' experience, increasing access for market participants and delivering our plan efficiently through an ambitious programme of digital initiatives
DS8	We will fully harness data as an asset, to improve our decision making, operations, customer services, whole system solutions and innovative ways of working
DS9	We will protect the security of our customers and operations by meeting best practice cyber security standards for businesses and critical national infrastructure

Discover how we're meeting Ofgem's requirements:

Annex 4C.1: Digitalisation Strategy
Annex 4C.2: Data Strategy
Cyber Resilience Strategy

We will need a sustainable, resilient workforce that can adapt quickly to the changing demands of the future.

Innovation
– at the core of everything we do

Innovation is central to everything we do. We constantly innovate to provide benefits to our existing and future customers, and to help pave the way to a safer, more reliable, and more cost-efficient Net Zero energy system. We do this through delivering award winning innovation, having a strong culture and strategic focus on innovation, and having a clear process to embed successful innovation developed by us and others.

This RIIO-ED2 Business Plan is built on a decade of proven innovation. In RIIO-ED2, we will continue to be leaders in innovation, ensuring innovation is an integrated part of our business. We will continue to deliver tangible benefits to our customers and the wider energy system.

Our strong strategic focus on innovation

Our strong strategic focus on innovation is best evidenced in two ways: we have an industry-leading track record in innovation, and we have a strong culture and the processes to embed proven innovation and foster and fund new innovation as business as usual (BAU).

Industry-leading track record

In RIIO-ED1 we have led more NIC, NIA, and IRM innovation investment than any other DNO (on a per licence basis). Not only have we delivered over £27m benefits for our customers from innovation within RIIO-ED1, we have delivered award-winning innovation which benefits all UK customers by supporting the energy transition. For example, developing the world's first real-time fault level monitor, to facilitate renewable generation connections as the UK decarbonises; or developing the use of artificial intelligence and data to enhance LV network planning and operational capabilities. Throughout RIIO-ED2, we will continue to actively engage with the innovation regulatory framework while also further increasing our BAU innovation activities.

RIIO-ED2 savings from embedded innovation

£83.6m

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Our culture of fostering BAU innovation and embedding proven innovation

We have developed a strong innovation culture within our business, spearheaded by our Delivering Real Innovation and Engagement (DRIVE) culture of innovation campaign.

Through careful design and implementation, led from Director level, this initiative has achieved two aims:

- to foster innovation ideas from our people and implement them as BAU

- to ensure that successful innovation becomes BAU.

Central to DRIVE are 100 innovation champions, nominated by the business and based at every single office and depot. They help successful innovation to become BAU in two ways. Firstly, by being engaged throughout the innovation process, any potential barriers to BAU roll out are identified and resolved earlier in the process. This helps produce 'BAU ready' innovation projects. Approaches like this mean that innovation projects such as WaNDA and NCEWS have transitioned to BAU without delay. Secondly, innovation champions support the internal roll out of proven innovation, including projects delivered by others, such as the use of thermal imaging cameras to find cable faults.

Through DRIVE, we also launched a series of specific challenges to tap into the expertise of our staff, with successful ideas being delivered via our totex allowance. Robust processes are in place that enable concepts to be developed, supported, and formally approved. This ensures that ideas are followed through to completion, and create real solutions for our customers. So far, we have generated over 300 ideas and involved over 1,200 colleagues, with over 90 ideas selected for further development into totex funded innovation projects.

We will fund more innovation in RIIO-ED2 using our totex allowance. We recognise the need have a structured framework to ensure the successful of roll-out and monitoring of proven RIIO-ED1 innovations within the RIIO-ED2 period – DRIVE means we already have in place the culture, personnel, and framework to do this.

DRIVE is now fully embedded as BAU. We will set at least three business wide innovation challenges (or "campaigns") each year that are aligned with our high-level Strategic Innovation Principles:

- To deliver a Smarter, more Flexible Network

- To deliver Value for our Customers

- To deliver a more Sustainable Network

To support the above, for RIIO-ED2 we have updated and developed a fully holistic innovation process that is independent of funding mechanism, embedded throughout the business. This process is in turn supported by a robust governance structure, led by our innovation board that is responsible for overseeing the delivery of all innovation projects from conception to BAU rollout. For full details of this, please refer to our RIIO-ED2 Innovation Strategy (Annex 3.1).

Building our RIIO-ED2 Business Plan on proven innovation

This RIIO-ED2 Business Plan is built on proven RIIO-ED1 and DCPR5 innovation in two ways.

Firstly, innovations we've developed in RIIO-ED1 have allowed us to develop a more targeted and customer-focussed RIIO-ED2 Business Plan than ever before. For example, our innovative EV-Up and Heat-Up forecasting projects mean we know the likelihood of electric vehicle (EV) and heat pump uptake for every household we serve. By more precisely understanding our customers' requirements, we have been able to more accurately determine where and when interventions are needed in RIIO-ED2.

Secondly, we have reviewed over 200 innovation projects that we or other network companies have completed. We captured lessons-learnt and evaluated each project's potential to deliver benefits within RIIO-ED2. This review identified 68 projects that are either already delivering BAU benefits or have high potential to do so within RIIO-ED2, 21% of which are led by other TOs and DNOs.

We have built our RIIO-ED2 Business Plan based on using the outputs from these 68 innovation projects as BAU within RIIO-ED2. By building this plan on innovation, we are ensuring that the benefits from these projects are embedded for our customers. We estimate that this will deliver £83.6m of cost savings in this business plan and additional carbon benefits (please see Annex 3.1 for full breakdown).

Business Plan Section	RIIO-ED2 savings from innovation
Load related and asset management investment plans *(Chapter 4A.1 and 4A.2)*	**£83.6m**

Innovation activities in RIIO-ED2

We have developed a detailed strategy for how we will innovate during RIIO-ED2 (for more details, please see Annex 3.1). This supports Ofgem's two high-level innovation themes – Energy System Transition and Consumer Vulnerability – and are strategically aligned with the challenges that the industry faces.

Within each focus area we have further detailed the areas that we propose to innovate in and the objectives we seek to achieve. The funding route(s) (either totex, or innovation stimulus such as the Network Innovation Allowance) applicable to each area are identified, demonstrating our commitment to increase the amount of innovation we undertake in BAU. Once a project has been defined, it will be allocated the appropriate funding once approved. Where innovation results only in cost efficiency savings that will benefit us directly, we will fund this exclusively through totex.

Innovation allows us to do more, for less – from making it easier to connect renewable generation, to improving the efficiency of our day-to-day operations. Innovation is crucial to achieving the government's ambitious targets for Net Zero emissions.

A just transition

The only meaningful energy transition is a just one. Our actions in RIIO-ED2 and beyond must evolve our networks and services in a way that supports accessibility for all and recognises the benefits that we can deliver to the wider economy through jobs and growth.

This is particularly important as we face the unprecedented impacts of the COVID-19 pandemic. We want to take this opportunity to help lead a green recovery, drive positive social change, and promote a just transition.

At the core of our purpose and plans

Our strategic direction for RIIO-ED2 and beyond is to: **"Work with the communities we serve to enable a just transition to our Net Zero future".** This emphasis on the link between environmental drivers of change and the social impacts places the just transition at the heart of our RIIO-ED2 plans.

We are committed to turning this purpose into action – helping to deliver wider benefits in our communities. As we develop, finalise and deliver our business plan, we will continuously challenge ourselves to ensure that we take into account the full impact of our operations in our strategic direction.

To guide us on this journey, we are developing a set of 'just transition principles' (see next page). These are intended to anchor our decisions and actions, particularly as the challenges and context of the energy transition evolves in the coming years. That's why we will engage further on our proposed principles to ensure these are fully reflective of the challenges and opportunities ahead where we can make a real difference.

Targeted action and collaboration for impact

We can't act alone. Enabling the just transition will require coordinated and collaborative effort to join up and deliver national energy system policy and locally led plans.

There are also some legal and regulatory constraints that limit what we can do. For example, changing the way the costs of running our networks impact energy bills for different types of customer is outside of our direct control.

But where such constraints exist, we believe there is an even stronger case for us to drive and support positive changes. For example, providing support to low income consumers to help them in the energy transition. More widely, through our RIIO-ED2 investment plan, we aim to create new jobs and economic growth in our communities, both directly and in our supply chain.

Importantly, we will also need to form inter-sector partnerships and collaborate to manage long-term issues where responsibilities might overlap, such as Net Zero, public EV infrastructure rollout, and vulnerability.

Climate action + social inclusion = the just transition .

What is the 'just transition'?
The concept of the just transition builds on global frameworks addressing climate change, human rights, labour standards and inclusive growth. It focuses attention on the need to anticipate the social implications of the shift to a low-carbon economy and the increasing impacts of climate change.

It's about ensuring that social issues are considered in addressing what, on the face of it, is an environmental issue. A just transition will integrate jobs, decent work, community, affordability and vulnerability dimensions into the design and delivery of climate action. It will drive high social standards in the growing low-carbon economy, respond to concerns about potentially "stranded" workers' and communities in carbon-intensive sectors, and protect people and assets from intensifying climate impacts. These drivers span sectors right across the economy, including energy, transport, industry and cities.

One of the ways to accelerate climate action – and optimise its benefits – is to ensure that it is inclusive. This means taking account of the risks, opportunities and impacts for different groups and communities, so that no one is left behind.

Just transition is embedded throughout our plan and engagement

Trust and legitimacy in our plans to enable a just transition is key. That begins with the extensive engagement that we have already undertaken to develop our RIIO-ED2 plan.

Our stakeholders have told us how important supporting a just transition is to them, and we have made it central to our plans. As we implement our plan, we will maintain and build on that model of challenge and engagement with a wide and representative set of stakeholders.

We have included a range of strategies, commitments and initiatives in our RIIO-ED2 business plan that align to our just transition principles (summarised on the next page).

Some of these proposals are for new Consumer Value Propositions or other bespoke proposals – and so we welcome stakeholder views on these as part of this draft plan response.

Next steps

We've identified the things we need to get right as a business to ensure that we embed the just transition through our ED2 plan and in the longer-term. We'll further develop our thinking and plans for how we will fully embed the just transition over the coming months.

This will include our updated Sustainable Business Strategy, which will be included in our final business plan submission. We'll also review all our strategies ahead of our final submission to ensure these align to our just transition principles and ambitions.

And we'll continue to engage with our CEG, stakeholders and subject matter experts to further develop and strengthen our proposals to support a just transition.

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Our expenditure, incentives and finance

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Just transition principles

A purposeful business

Support a managed transition to Net Zero that creates benefits and opportunities for our communities

- Just Transition embedded in our strategy and operations
- Social impact and return core to our planning and investment
- Transparent and accountable on public interest outcomes

Leaving no-one behind in the energy transition

Seek to share and ensure access to the benefits of the low carbon future

- Support our vulnerable and fuel poor customers
- Support universal access to energy transition benefits
- Optimise Net Zero investment for the right long term solution

Trust and legitimacy through continuous engagement

Together with our communities

Empower and invigorate our communities and strengthen local economies

- Coordinated approach with partners and stakeholders
- Stronger and more sustainable local supply chains
- Energise social partnerships to deliver wider benefits

Sharing knowledge and opportunity

Equip our people and our communities with the skills and knowledge they need to benefit from the transition

- Investment in knowledge-sharing and re-skilling for Net Zero
- Fair work and conditions for our people
- Use digitalisation to increase access to the energy system

How our RIIO-ED2 plans reflect our commitment to enabling a just transition

Our strategies	Our commitments and initiatives	Our outputs and measures
• Our most ambitious and innovative **Vulnerability Strategy** to date • Our **Sustainable Business Strategy** with broader focus on social responsibility • Our **Community Energy Strategy** to support community-level action • Our **Workforce Resilience Strategy** emphasises fair work and upskilling for the energy transition • Our **Digitalisation Strategy** which will enable us to increase our "digital inclusivity	• Prioritising high risk customers and increasing access to services • Enhancing our support to local community-based energy projects • Supporting innovative low-carbon projects with a dedicated team • Taking control of the EV charging infrastructure where no other provider • Increasing uptake of smart metering across harder-to-reach groups • Building a more inclusive and diverse workforce • Enhancing environmental and social sustainability in our supply chain	• A bespoke output to support the delivery of community-led green generation • Our consumer value proposition (CVP) proposals to accelerate opportunities for whole system solutions to just transition challenges. These include: **EV Chargepoint Optioneering –** working with local authorities to deliver publicly available chargers, helping to promote universal access **Net Zero Fund –** Establishing a fund for innovative low-carbon community projects **Strategic Optimisers –** Co-creating local authority heat and decarbonisation plans • Broadening our use of our Social Return on Investment (SROI) tool

The building blocks for our Just Transition Strategy

Creating and leading purpose	Public purpose and values	Leadership of the Just Transition	Just Transition Principles
An ambitious plan	Just Transition Strategy	Just Transition Initiatives Portfolio for ED2	Adapting to Transition Uncertainty & Risks
Ensuring transparency and accountability		Just Transition Targets and Metrics	Transparency & Reporting
Looking outward	Best practice & Frameworks / Partnerships & Collaboration	Sharing expertise and opportunities	Trust and legitimacy through engagement
Building a platform for impact	Governance & Funding	Justness through our people and culture	Operations and capabilities for a Just Transition

Our RIIO-ED2 Business Plan in detail

As we described in Chapter 3, our RIIO-ED2 Strategy is underpinned by three pillars which have been developed based upon our customer and stakeholder engagement. These pillars enable us to meet the changing needs of our customers and stakeholders as we collectively strive for a just transition to Net Zero; and develop our network, work with our communities, and prepare our business for a more sustainable future.

In this chapter, we lay out in extensive detail what this means for our network, our customers and communities, and our business. We outline what we will deliver, how we will measure our success, and how we will continue to evolve in an agile and transparent manner on our journey to *"work with the communities we serve to enable a just transition to our Net Zero future"*.

4

In this chapter

Part A:	**Pg36**
Develop a network that's ready for Net Zero	

A1	Our ambitious programme of work to develop the network of the future that enables the energy transition and facilitates Net Zero
A2	How we will keep electricity supplies reliable, secure and safe
A3	Our proposals on how we respond to increasing demand to deliver timely and efficient connections

Part B:	**Pg86**
Be the trusted partner for customers, communities and stakeholders	

B1	How we will deliver excellent satisfaction and enhanced services for all customers
B2	Our support to vulnerable customers and communities that will ensure no-one is left behind
B3	How we will work with our communities to enable the energy system transition and our proposed Distribution Net Zero Fund

Part C:	**Pg110**
Ready our business for a digital and sustainable future	

C1	How we will deliver upon sustainability ambitions through environmental, social and governance initiatives
C2	How we will ensure a diverse, inclusive and healthy workforce that will benefit from a just transition
C3	Our ambitious programme of digital and data initiatives that will enable us to unlock Net Zero benefits for our customers and stakeholders

4A.1: Develop the Network of the Future

The energy landscape is changing. To help our customers decarbonise, we must develop a network that is ready for Net Zero. This means creating additional capacity for our customers' low carbon technologies (LCTs), enhancing our distribution system operator (DSO) activities and enablers, delivering a new approach to managing the low voltage (LV) network, and taking on a greater whole system role.

Our RIIO-ED2 foundations

In RIIO-ED1, we have improved the reliability of our customers' supply, and connected more renewable generation to support decarbonisation. As we near the end of RIIO-ED1, we are already seeing the impacts of changing network demands driven by LCT growth, such as higher levels of asset utilisation, increasing fault levels, and additional areas of constraint requiring enhanced network management.

In RIIO-ED1, most of our network investment was at higher voltage levels. In RIIO-ED2 we must shift our focus to the LV networks, as it is here that the LCTs needed for decarbonisation will connect.

To facilitate a Just Transition for our customers and enable Net Zero, we must invest in these LV networks.

Our RIIO- ED1 highlights:

Partnered with Outram Research to develop the worlds first real-time fault level monitor

First DNO to tender for reactive power and to offer site specific pricing

We have conducted 366MW and 38MVAr of flexibility tenders with 4 bids accepted at 3 locations

Delivered a distribution solution to the management of transmission constraints across 11 Grid Supply Points in Dumfries and Galloway delivering c.£38.5m of savings

RIIO-ED2 changes

As society decarbonises to Net Zero, our customers are increasingly turning to EVs and heat pumps for their transport and heating. We also expect a further leap in renewable generation to power these new LCTs, more customers actively participating in the energy system, and the electricity system operator (ESO) increasingly needing to use distribution-connected service providers.

These customer-led changes are far beyond what the network is designed for. They will result in higher network utilisation, more dynamic and volatile power flows, more complex network planning and operation, and increasing whole system interactivity.

To address this, we need to deliver a step-change in network capacity, operability capabilities, and whole system coordination.

In this section, you will read about:

- Our customers' needs and forecast uptake of EVs, heat pumps, and renewable generation out to 2050.

- How we used industry-leading modelling to assess the impact of these customer-led changes, and why we need to invest in RIIO-ED2 to accommodate them.

- Our Load Related Expenditure Strategy: Engineering Net Zero – how we will deliver the capacity that our customers and communities need, and why these are the right interventions.

- Our DSO Strategy – how we will deliver the DSO activities and enablers needed for enhanced network management systems, infrastructure to coordinate and dispatch flexibility, a roll-out of LV network monitoring, and data sharing.

- How we have developed our investment plan to ensure we are seeking sufficient investment to enable Net Zero without risking customers paying for excess allowances.

- How we will deliver our investment plans efficiently by building on RIIO-ED1 innovation.

- How we have ensured that it is feasible to deliver the volumes we are proposing.

You can find more detail in:

Annex 4A.1 – our Future System Strategy provides an overall view of our Engineering plan.

Annex 4A.6 – our DFES document forecasts customer demand and generation that the network must accommodate.

Annex 4A.2 – our Load Related Expenditure Strategy: Engineering Net Zero describes our plans in more detail.

Annex 4A.3 – our DSO Strategy describes how we will deliver the DSO activities and enablers needed.

Annex 4A.21 – our LV Network Monitoring Strategy explains how we will increase visibility of the LV network.

Annex 4A.22 – our LV Services and Cut Outs Strategy explains how we will replace looped services.

Annex 5A.5 – our robust unit cost data that underpins our plans.

Annex 4A.23 – our evidence that supports our proposals (EJPs, CBAs and BPDTs).

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with engineering experts through specific bilaterals, workshops and surveys as well as also asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Develop the network of the future to enable the Net Zero transition

Customers think that developing the network of the future to enable the Net Zero transition should be one of our top priorities for RIIO-ED2. Stakeholders think that technology-enabled solutions, such as online monitoring and active network management, should be used to enable Net Zero.

Meet customer expectations to retain choice over when they use EV chargers and heat pumps, and to use them immediately and at full capacity

To achieve this, stakeholders agree we should invest strategically to proactively remove constraints. This coordination of interventions will also reduce customer disruption and increase cost-efficiency.

Share network data to ultimately be able to manage the network more efficiently and effectively by working with the communities we serve

There is clear support from stakeholders that energy networks should collect and share data with other parties in line with data protection regulations. Overall, more than half of the domestic customers would be happy for us to access individual property usage and smart metering data to help manage the network and service received by customers.

Consider a range of solutions such as flexibility and smart solutions

Overall, stakeholders shared the belief that delivering the Net Zero and DSO transitions would in part be enabled through the employment of flexibility services and an overall uptake in energy efficiency. Other enablers were identified as cross-sector collaboration, innovation and data.

Deploy a range of technology enabled solutions to enable Net Zero e.g. online monitoring, active network management

Stakeholders felt that the work we are doing in transitioning to DSO is moving in the right direction, with many pointing out flexibility and energy efficiency as key to the process.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our network of the future plans will enable us to actively manage capacity on our network through a range of solutions, deliver savings for our customers, harness data as an asset, facilitate a neutral market and embed whole systems thinking along with making improvements to customer experience.

We have **8 detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

NZ1 We will enable the connection of low carbon technologies on our network through a mix of flexible, smart, and reinforcement solutions. By managing capacity on our network our current and future customers will retain choice on the time and scale of their technology use.

NZ2 We will deliver £84m of savings for our customers in RIIO-ED2, by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials.

NZ3 We will facilitate a neutral market for flexibility and embed whole systems thinking through our evolving Distribution System Operator role.

Percentage of customers who support the commitments*	*Household*	*Commercial*
	84.70%	**87.60**%

Percentage of customers who are willing to pay, at least the RIIO-ED2 cost, for commitments in this topic area.	**81.00**%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

The changing energy landscape

Our customers prioritise four main things in their electricity supply: reliability, safety, cost-efficiency, and the freedom to consume when they want (domestic customers especially do not want to be constrained).

The challenge for us in RIIO-ED2 is how to continue delivering these customer priorities against a radically changing energy landscape. In RIIO-ED2 we have a critical role to enable these evolving customers' needs, deliver a Just Transition to Net Zero, and ensure the continued safe, reliable, and efficient operation of the distribution network and wider system.

	EVs	HPs	DG
Now	ca. 20,000	ca. 1,000	4.8GW
2028	0.7-1m	0.3-0.6m	+4.7-5.9GW

Network of today

Our distribution network was originally developed in the 1960s' to deliver electricity from large transmission-connected fossil fuel power stations to our customers. The network was configured into four main voltage levels for this, and was sized to accommodate industrial, commercial, and typical domestic demand. Just one in ten homes were electrically heated, and there were no EVs beyond the occasional milk float.

This model has incrementally evolved over many years to meet changing customer needs. We have rolled out monitoring and control across the higher voltage networks, although the LV network remains largely unmonitored. We have invested at higher voltage levels to accommodate renewable generation growth. And we have delivered new technologies, such as Active Network Management (ANM), to offer quicker and lower cost connections.

In short, the story of the last 60 years is one of customers' needs evolving steadily, predictably, and incrementally. Our existing network capacity, planning tools, operational systems, and internal processes are tailored to these customer needs.

This slow evolution is now over. Decarbonisation, decentralisation, democratisation, and digitalisation will deliver a step change: a significant increase in customer demand and generation, more dynamic and volatile power flows, more complex distribution network planning and operation, and increasing whole system interactivity.

1	ICE Transport
2	Looped Services
3	Gas Cental Heating
4	Secondary Substation (HV-LV)
5	HV/LV Maximum Demand Indicators (MDIs)
6	Primary Substation (EHV-HV)
7	HV Generation
8	EHV Generation
9	Grid Substation (132kV-EHV)
10	Telecoms Network
11	Control Room

The challenge

These customer-led changes are far beyond what the network capacity, our operational systems, and our internal processes are designed for. This creates four core challenges we must deliver in RIIO-ED2:

Create additional network **capacity**	Manage increasing **complexity**	Recognise increasing network **criticality**	Manage deteriorating asset **condition**
so we can accommodate our customers' EVs, heat pumps, and generation.	to safeguard the distribution network and whole system, and to enable new markets and services to operate safely and efficiently.	our customers are becoming increasingly dependent on their electricity supply for all their activities.	as utilisation and criticality increase due to greater levels of demand and generation.

Developing our plan

Getting our intervention plan right has never been more important. The traditional method of developing price control plans using statistical economic models wasn't going to be good enough. That is why we've delivered a step change in how investment plans are developed, which sets the standard for others to follow.

We combined our stakeholder-endorsed Distribution Future Energy Scenarios (DFES) forecasts, our new enhanced forecasting tools which predict EV and heat pump uptake for every single customer we serve, a new analytical platform containing a full connectivity model of our network (including all 48,000km of LV), flexibility tenders at over 1,500 sites, and a linear optimisation engine which identifies and sequences solutions.

Together, these systematically identify where, when, and how we need to intervene. We're no longer building a plan on statistical estimates – we're addressing individual known constraints using market tested solutions.

Network of tomorrow

To respond to the system challenges and deliver our customers' priorities, in RIIO-ED2 we will deliver:

1,117MW additional capacity, including on 43,384 looped service cables, 563km of LV network cable, 708 secondary substations, and 36 switchgear sites. We will roll-out active fault level management.

Our Engineering Net Zero platform, to provide real-time data-driven analytics to tell us what is happening on the network right now, and what will happen in operational and planning timescales.

DSO capabilities, to expand our toolbox of solutions to support flexibility markets, analyse and share data, enable transparency and competition, and help manage a more complex and interactive system. This includes expanding LV monitoring from 8% to 52% of our larger secondary substations by 2028, and 22 new constraint management zones.

Asset management interventions, to manage the risk, reliability, resilience, and safety of our network. We will reduce the frequency of customer power cuts by 15% and their duration by 10%, and protect our customers served by rising and lateral mains.

Environmental interventions, to reduce the environmental impact of our network and to increase its resilience to climate change.

Continued innovation, to help deliver a safer, more reliable, and more cost-efficient Net Zero system.

1 Domestic EVs　7 Widescale LV Monitoring　12 EHV Storage
2 Heat Pump　8 HV Storage　13 EHV Generation
3 3-Phase Services　9 HV Generation　14 Telecoms Network
4 LV Storage　10 DSO Management Zones　15 Advanced Network Control
6 LV Automation　11 AFLM
5 Solar PV　Flexibility

What our RIIO-ED2 plan means for customers

Our RIIO-ED2 Business Plan delivers the capacity our customers and communities need, enables a Just Transition to Net Zero, and ensures the continued safe, reliable, and efficient operation of the distribution network and wider system

Customers will have the capacity they need to decarbonise – they will be able to use EV chargersand heat pumps immediately and at full capacity.

Customers will have an increasingly reliable supply as they become more dependent on it, as we reduce the frequency and duration of power cuts.

Customers, our staff, and the general public will be safe from a range of network risks.

Customers will only be paying for what they need – our approach means we have sufficient investment to enable Net Zero, but no excess allowances.

Engineering Net Zero

In order to understand our customers' needs for additional network capacity, and establish the appropriate interventions during RIIO-ED2, we have followed a three-stage process:

Stage 1 – we forecast our customers' demand and generation growth to understand what the network must accommodate

Stage 2 – we undertook industry-leading network assessments to understand the additional network capacity needed to accommodate these new customer needs, and the impact on the underlying asset base

Stage 3 – we assessed and market-tested a range of interventions to provide this required capacity, including flexibility services and energy efficiency

Each of the stages above has been informed by customer and stakeholder feedback. As a result of this work:

Page 44 summarises the key flexible, smart, and traditional interventions we will deliver in RIIO-ED2 to provide the additional network capacity our customers need.

Page 49 explains the new network management system we will deliver to facilitate Net Zero.

Pages 50 and 51 explain how we will deliver these interventions efficiently, by using strategic investment and innovation.

Did you know?

LV (low voltage) is all voltages up to and including 1kV; HV (high voltage) is all voltages above 1kV up to and including 22kV; EHV (extra high voltage) is all distribution voltages greater than 22kV.

| Stage 1 | Stage 2 | Stage 3 |

Forecasting our customers' needs

To efficiently plan and operate our network to accommodate our customers' requirements, we first need to understand what these requirements are. We develop Distribution Future Energy Scenario (DFES) forecasts to do this. We then compare these against Net Zero compliant scenarios from the Electricity System Operator (ESO) and the Climate Change Committee (CCC) to develop our RIIO-ED2 investment scenarios.

DFES forecasts

These are forecasts for key customer demand and generation metrics up until 2050. We develop these considering a range of sources, including UK and devolved government targets such as: Net Zero targets of 2045 for Scotland and 2050 for England and Wales; interim legislative 2030 greenhouse gas emission reduction targets; Scottish and UK government bans on new petrol and diesel cars and vans; the UK Government Ten Point Plan and Energy White Paper; and the Scottish Government Heat in Buildings Strategy.

Given the uncertainties out to 2050, we create forecasts for four main energy scenarios. These scenarios represent differing levels of customer ambition, government and policy support, economic growth, and technology development. Our stakeholders review our forecasts and we make changes based on their well-justified feedback.

All forecast scenarios show a significant increase in the volume of customer demand and generation that we will need to serve on our distribution network. There are three areas that will change the most:

1. The electrification of transport: by 2030, the number of customer EVs on our distribution network could increase from 10,000 now to up to 1.5 million domestic EVs. An EV can double the demand of a customer property, and materially increase peak network demand.

2. The electrification of heat: how heat is decarbonised is a key variable, but one area of greater certainty is that off-gas grid customers will use heat pumps. In some of the high roll-out scenarios, heat pump impact on our network peak demand could be over five times greater than EVs.

3. More generation: by 2030, the volume of customer generation we connect to our SP Manweb network could double. For SP Distribution, it could triple. By 2050, we could have connected over five times more customer generation than we have to date. Storage is defined as a type of generation, so is included within the generation forecasts.

Why we forecast customer needs so far into the future

While the RIIO-ED2 price control period covers 2023-28, we forecast customer needs out to 2050. This is because some of the solutions to provide network capacity within RIIO-ED2 will last for decades. We therefore need to understand long-term customer needs to ensure that we know when it's most efficient to use shorter-term interventions or longer-term interventions. This approach avoids short-sighted investment decisions which end up costing customers more. Our DFES is updated annually and published in an open digital format including heat maps where necessary to inform our customers and stakeholders of expected changes.

Using DFES, ESO, and CCC forecasts to develop a robust intervention plan

Different forecast scenarios will have different network impacts, requiring different levels of investment. So how do we know which one to plan for? In addition to the four DFES scenarios, we create a low scenario, a baseline scenario, and a high scenario. Our RIIO-ED2 investment plan is developed to deliver the baseline scenario, but must have the capability to deliver anywhere within the low and high range (which mark the lower and upper credible range).

These three scenarios are developed considering the range of Net Zero compliant scenarios developed by us, the ESO, and the CCC. We only consider Net Zero compliant scenarios as Net Zero is enshrined in legislation – we must deliver it. This means that in developing this scenario range we have not included the DFES or FES Steady Progression scenarios, as they do not meet Net Zero, nor the System Transformation scenarios, as they do not deliver legislated interim targets. Our approach means even a business plan based on the low scenario would contain sufficient investment to deliver 2050 Net Zero and interim targets (although it wouldn't contain enough investment

to meet customer needs within RIIO-ED2 where these are above the low scenario).

Table 1 shows our low, baseline, and high scenarios for EVs, heat pumps, and distributed generation. Figure 1 shows this same information for EVs and heat pumps out to 2035 (the black line is our baseline scenario, the grey band marks the low and high scenario).

The baseline represents the best approach for our customers assuming the appropriate regulatory mechanisms are in place. Figure 1 and Table 1 show that our baseline scenario tracks the bottom of the credible range in SP Manweb, and marginally above in SP Distribution due to Scottish Government targets. This is intentional. By basing our investment plan on EV and heat pump uptake at the lower end of Net Zero compliant forecasts, we're confident that we are only asking for the minimum investment needed to enable Net Zero, as actual EV and heat pump levels are unlikely to be lower than this baseline scenario. Where actual levels are higher than this baseline scenario, we will use uncertainty mechanisms to address the difference.

This approach and the use of uncertainty mechanisms means we have a robust investment plan which can adapt to our customers' needs across the range of credible Net Zero pathways, and it protects customers by making sure we have sufficient investment to enable Net Zero, but no excess allowances.

For the complete set of DFES forecasts, a full list of our assumptions and a breakdown of the demand and generation metrics employed, including how we used stakeholder engagement to develop them, refer to our main DFES documents in Annex 4A.6: DFES.

Table 1:
Our RIIO-ED2 low, baseline, and high scenario

	Total uptake by 2028		
	EVs	Heat pumps	Generation
High scenario	1.02m	0.63m	+5.9GW
Baseline scenario	0.67m	0.37m	+4.7GW
Low scenario	0.65m	0.34m	+4.7GW

Figure 1:
Our RIIO-ED2 Baseline Scenario compared to Net Zero compliant industry forecasts

Scenario range ▬ Baseline scenario

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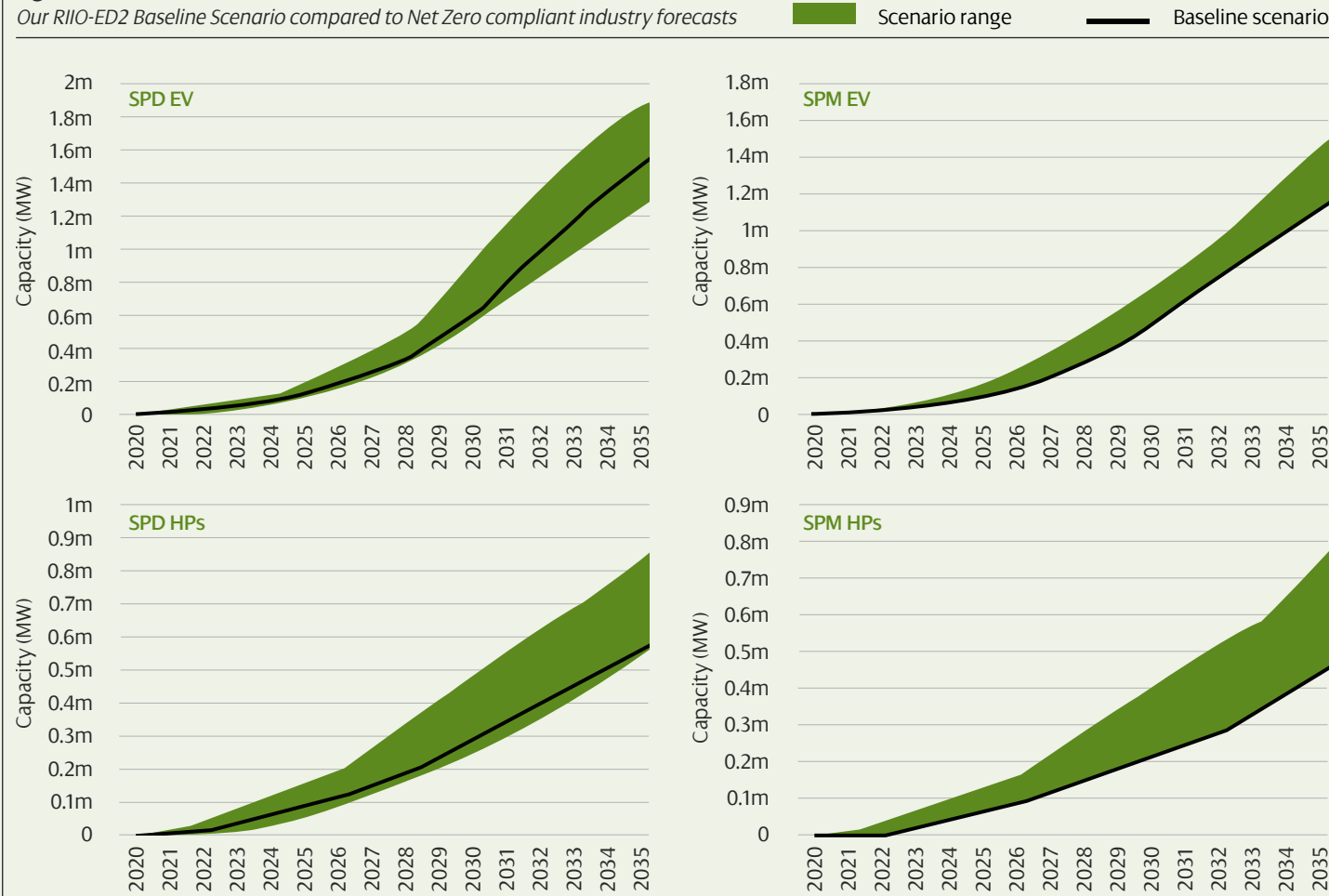
Network assessments

Our forecasts show significant customer demand and generation growth. Additional network capacity is needed where this growth exceeds existing network capacity. This can be created or managed by flexibility, smart, energy efficiency, and traditional interventions.

To assess the ability of the existing network to accommodate this demand and generation increase, we undertook a comprehensive programme of network assessments. These built on our industry leading enhanced forecasting methodology. These assessments identified where, when, and how much additional capacity will be needed – see next page for how we did this.

These assessments showed that the magnitude of new customer demand and generation will push power flows well beyond what the distribution network is currently designed for.

There are three network challenges in particular that require a significant increase in interventions compared to RIIO-ED1 – these are described below. The main change from RIIO-ED1 is the impact to the LV network. It is here that the LCTs needed to enable decarbonisation will connect – we must invest here to facilitate a just transition for our customers and enable Net Zero.

1. Low Voltage (LV) looped service cables and cut out units.
These are the network assets which connect individual households to the LV network. Over 500,000 of our customers are supplied by looped services; this is where multiple properties share a single service cable. The forecast electrification of domestic heat and transport means household demand could triple, dangerously overloading these assets. We need to start intervening on these assets in RIIO-ED2 to remove this barrier to customer LCT uptake. Our baseline forecast demonstrates the need to intervene on over 43,000 LV looped service cables and cut out units within RIIO-ED2.

Solar PV　　Heat Pump

Network overloaded

LV Looped Service

LV Mains Cable
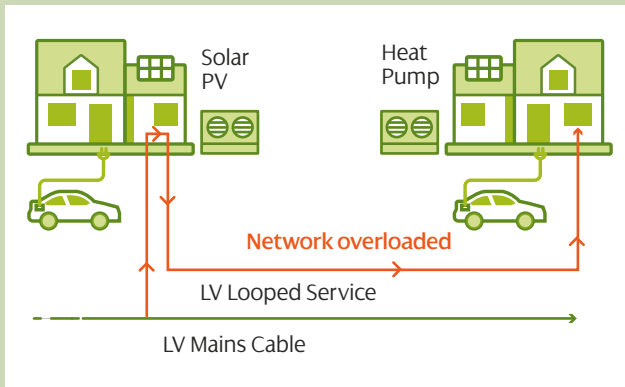
2. The LV network.
This is the section of network that runs from local substations to just outside customers' properties. As households are supplied from the LV network, the tripling of household demand that affects LV services and cut out units also impacts the LV network. Based on our network assessments, we will need to upgrade 563km of LV cable and intervene on 708 HV/LV substations within RIIO-ED2 to maintain a safe and secure electricity supply to our customers, and facilitate the uptake of the LCTs.

3. Switchgear.
These are the network assets which safely isolate the network in the event of a fault. They are rated to cope with a certain level of fault current that flows in the event of an asset failure ('fault level'). As generators are a source of fault current, increasing volumes of generation will lead to an increase in fault level. Our modelling demonstrates the need to intervene on 28 of our 33kV substations, 4 HV substations and 4 HV interconnected groups within RIIO-ED2. In RIIO-ED1, we used innovation to successfully develop fault level monitoring technology. We will embed this innovation into business-as-usual in RIIO-ED2 and rollout fault level monitoring to manage fault levels at 41 sites.

The volumes described above are based on our baseline scenario. Given our baseline scenario is at the lower end of the Net Zero compliant scenarios, these represent the minimum number of interventions we must make in RIIO-ED2 to deliver Net Zero – we cannot defer these until RIIO-ED3 without risking the achievement of Net Zero by target dates, creating a barrier to a just transition, and incurring or accepting significant risk to our network and the safety of both the public and our workforce.

What would happen if we didn't increase network capacity – what is the 'do nothing' option?

A safety risk to customers

If we don't upgrade looped services, the additional strain on these assets presents a fire risk to those customers.

If we don't intervene on the LV network, assets would operate beyond their rating, for example overhead line conductors could 'sag' below a safe height presenting a risk to the public.

If we don't upgrade switchgear, there is a safety risk to the public and staff during network faults.

Decarbonisation would slow

Our customers would be less likely to transition to EVs and heat pumps at the rate needed to achieve Net Zero since they may not be able to use their technology to its full capacity, and new generation will not be able to connect to the network due to fault level limitations. We must deliver these interventions in RIIO-ED2 to facilitate Net Zero.

The network would be overwhelmed

Where customers continue to install EVs and heat pumps without there being sufficient capacity, it will overload the network, leading to power cuts, shortening of network asset life, higher overall costs for customers, and possible safety concerns.

Stakeholders support our network assessment method.

Our leading Engineering Net Zero Model

A key theme that emerged in preparing for RIIO-ED2 is that the lower voltage networks will be on the front-line in RIIO-ED2. EV chargers, heat pumps, domestic customers actively participating in energy markets, increasing smart meter data, increasing connection applications – this is all happening at the lower voltages.

The forecast level of activity is a step change from decades of steady, predictable, incremental change. Our existing network planning tools, our operational capabilities, and our internal processes were no longer going to be good enough. Neither was the traditional method of developing price control plans using statistical economic models.

Therefore over the course of RIIO-ED1, we've developed a new and industry leading approach to developing investment plans. This involved developing and combining two separate innovations.

First, through our award-winning Network Constraints Early Warning System (NCEWS) innovation project, we have built a full model of all 48,000km of our LV network. We've combined it with our existing HV and EHV network models, so we now have a complete connectivity model of our entire distribution network. We hosted this connectivity model within an analytical platform – our ENZ model.

Second, we've developed two enhanced forecasting tools. They're called EV-UP and Heat-Up, and they use spatial, demographic, and socioeconomic data to forecast EV and heat pump uptake for every customer we serve. This is relevant as these are the two drivers of increasing demand.

These forecasting tools are complementary to our low, baseline, and high scenario forecasts. The scenarios consider a range of macro factors (such as legislation and technology development) to forecast total EV and heat pump volumes across our whole licence area. EV-Up and Heat-Up show, for any scenario, how these are likely to roll-out across the network – they show us which individual households will get them and in what timescales.

Combining these innovations

To develop our RIIO-ED2 intervention plan, we entered the granular EV and heat pump forecasts into our ENZ model. This assessed the entire network from customers' cut outs all the way up to the transmission interface, for system normal and fault conditions, for multiple forecast scenarios. For many areas where the analysis showed constraints, we did this analysis for every half hour period to beyond 2030. This approach systematically identified where, when, and how much additional network capacity our customers need. This precise knowledge meant we could then tender for flexibility for every forecast RIIO-ED2 constraint – over 1,500 sites in total.

This modelling was intensive. Each model run analysed over 175,000 iterations per network asset. We didn't have any computers powerful enough, so we had to use cloud-based servers – each model run still took 20 hours to complete. But this approach has provided us with a more detailed view than ever before.

The outcome is that, for the first time, our load related investment plan isn't built using old world statistical estimates. It's built to address individual known constraints using market tested solutions – we know where, when, and how we need to intervene. This is a step change in how investment plans are developed, and sets the standard for others to follow.

| ▬ | LV network feeder (overloaded) | ◆ | HV/LV Substation (within limits) | ◆ | HV/LV Substation (overloaded) | ◯ | Off-Gas Grid Property | Unlikely to have an EV by 2030 | ◯ ◯ ◯ ◯ ◯ ◯ ● | Highly likely to have an EV by 2030 |

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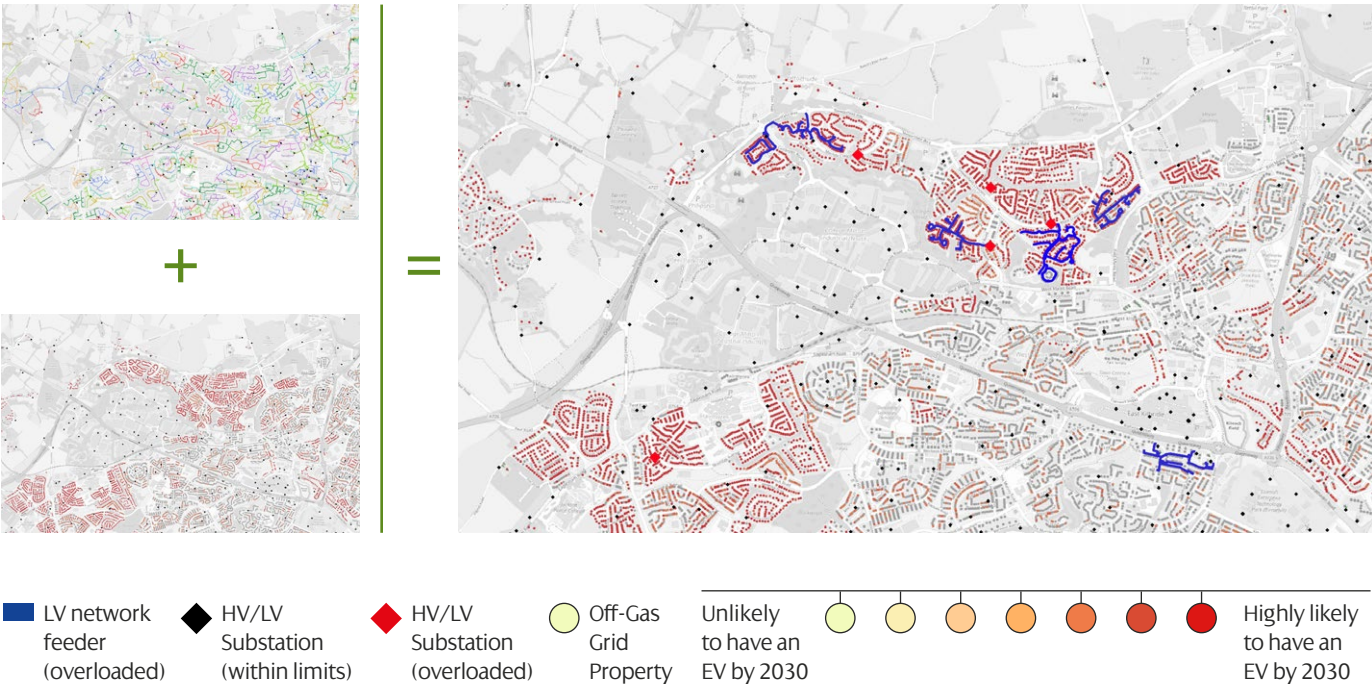
Stage 1 > **Stage 2** > **Stage 3**

Identifying and selecting the right interventions

There are six main types of interventions to add or manage capacity. They are not mutually exclusive, so can be combined.

When considering how to best provide capacity for customers in RIIO-ED2, we assessed all interventions on an equal and impartial basis. We considered the ability to deliver customers needs alongside whole life cost, safety, environmental impact, and compliance with standards.

Intervention type	Advantages ✓	Disadvantages ✕
Flexibility services *Where customers agree to actively manage their demand/generation to help avoid constraints. See our case study example on the next page.*	Can help defer or avoid reinforcements. Encourages competition and the democratisation of the energy system (participation by a wider pool of service providers).	Not always available as an option. Doesn't help fault level (switchgear) constraints.
Energy efficiency *Where customers have agreed to passive measures to manage their demand to help avoid constraints.*	Directly benefits customers through lower bills. Helps reduce whole system peak, network losses, and the need for generation capacity.	Cost effectiveness (MW reduction per £) is lower than other interventions. Doesn't help fault level (switchgear) constraints.
Smart network interventions *Where we look to get more out of existing network capacity.*	Often lower cost than network reinforcement. Have secondary benefits, such as enhancing the effectiveness of other interventions.	Can increase network complexity.
Network reconfiguration *Where we temporarily or permanently adjust the topography of the network to better match existing network capacity with customer power flows.*	A low-cost intervention. Quick to implement.	Limited to where there is a low coincidence of customer usage between neighbouring sections of network.
Using enhanced network asset ratings *Where we seek to increase the thermal capacity of individual existing network assets without having to replace them.*	Typically a low-cost intervention. Quick to implement.	Capacity uplift might only be for short periods. Can increase asset deterioration. Doesn't help switchgear constraints.
Network reinforcement *Where we permanently increase network capacity by replacing existing assets or adding more assets – for example, a new substation.*	Allows significant customer demand and generation growth by providing substantial additional capacity. Enables customer participation in wider market opportunities by providing unconstrained access on an enduring basis. Can improve asset health and reliability.	Can take a long time to deliver, especially where planning permission is needed. Potentially higher environmental impact than other interventions.

Using customer flexibility to support the transition to Net Zero

Flexibility services will play a key role in helping us manage the pace of the Net Zero transition. Flexibility services can help us defer or avoid new network capacity, can be deployed more quickly than traditional network interventions, and can help democratise and bring competition to the energy sector.

Flexibility services are where our customers agree to actively manage their demand or generation to help us manage capacity constraints on our network. This provides an agile smart means of managing our network. Flexibility is complementary to traditional reinforcement solutions, providing shorter-term solutions where we need to act quickly or manage uncertainty.

In developing our RIIO-ED2 intervention plan, we used our ENZ model (see page 49) to establish network capacity requirements and we tendered for flexibility services for every network capacity shortfall identified in the RIIO-ED2 period – including LV constraints. Our ambitious 2020 Autumn tenders were the largest we had ever undertaken and sought market solutions across 1,138 sites in total. This was to understand the availability and cost of flexibility, so we could develop a well-justified plan, and put in place flexibility contracts for RIIO-ED2.

The bid responses from the 2020 Autumn tenders have been assessed in detail alongside all other solutions. In RIIO-ED2 we will use flexibility to defer major reinforcements where this is in the best interests of consumers. For example, in the Carrington–Fiddlers Ferry group we will defer £10.5m of 132kV circuit upgrades, and at Redhouse we are able to defer replacing a 132/33kV transmission transformer, saving our customers £2.8m in exit charges. In Merseyside, we will combine flexibility with network monitoring and automation to defer replacing 10km of the 132kV cable that runs into the centre of Liverpool – as well as deferring £9m, this avoids significant disruption for residents.

Flexibility will play a key part in helping to manage the pace of the Net Zero transition. However, our assessments demonstrate that, even with advanced flexibility solutions, significant network upgrades will still be required to facilitate Net Zero. At LV, the network branches out to a degree where local demand or generation profiles can cluster and have significant impacts. Therefore, flexibility services and behind the meter storage must also be highly localised to manage local constraints. As the uptake of LCTs gathers pace, the uptake of smart-enabled technology and storage, local load diversity, local network limitations, and consumer behaviour will all be important factors in the development of network solutions.

Where flexibility services are not yet available and we have had to assume the use of network reinforcement, we will retender for flexibility within RIIO-ED2 before the reinforcement starts to ensure we are using the most efficient intervention. We have already started this, in our Spring 2021 tenders we have tendered for a total of **1.4GW across 1,554 sites**. These tenders are still on-going and we will reflect the outcome of these in our Final Business Plan Submission in December 2021.

In addition to using flexibility to manage capacity, we also plan to use it to help restore customer supplies quickly after a fault.

For more information please see our Load Related Expenditure Strategy: Engineering Net Zero (Annex 4A.2), and the Flexibility section of our website: www.spenergynetworks.co.uk/flexibility.

Autumn 2020 flexibility tenders

	Intact System Support	Post Fault System Support
132kV	65.3MW *(2 sites)*	16.4MW *(1 site)*
33kV	217.3MW *(12 sites)*	243.9MW
11kV	129.5MW *(23 sites)*	—
LV	118MW *(1,098 sites)*	—
Total RIIO-ED2	699MW	260.3MW
960MW across 1,138 sites		

How we assessed which solution to deploy, and when?

Different solutions have different capital and operating costs, and provide different levels of capacity.

When assessing solutions for each constraint at EHV and above, we have considered how the potential requirements for the solution change across the low to high scenario range. This considers how robust the investment is across the range of credible Net Zero pathways, and identifies where the scope, magnitude, or timing of the investment is sensitive to the range of future pathways.

For each LV and HV network constraint, our ENZ model (page 43) uses a linear optimisation engine to determine the most economical combination, sequence, and timing of solutions to meet the required level of network capacity. It does this by assessing the range of credible solutions to resolve the constraint (for example, a series of smaller smart and flexibility interventions versus a single larger reinforcement solution) and selects the combination of interventions that minimises NPV over the long-term planning horizon. It does this for every single HV and LV network constraint. This is a step change in modelling capability and how investment plans are developed, and ensures that we have developed an efficient investment plan.

We have completed a full set of supporting Engineering Justification Papers (EJPs), Cost Benefit Analysis (CBA) and populated Business Plan Data Tables (BPDT) for our proposals. *For details on these, see Annex 4A.23: EJP and CBA Index.*

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Interventions we will deliver in RIIO-ED2

Our network assessments identified three main areas where additional network capacity was needed. For each of these, we assessed a range of interventions and delivery options to meet the needs of our customers and stakeholders. Based on this work, in RIIO-ED2 we plan to deliver against the baseline scenario below.

Together these interventions total £232.9m, equating to 63% of our total £369.3m load related plan (excl. connections). The majority of the remainder is £90.4m investment in the EHV network (covering 33/11kV substations, 33kV circuits, 132/33kV substations, 132kV circuits). This investment is driven by the same drivers (decarbonisation increasing customer demand and generation), but equates to a 20% reduction in annual investment compared to RIIO-ED1. This is because the EHV network has good capacity available to accommodate a lot of this demand growth.

Uncertain expenditure across future pathways

Our business plan is developed to deliver the baseline scenario, but has the capability to flex anywhere within the low and high scenario range. To achieve this, for each of our planned interventions to provide capacity at higher voltage levels, we have considered how the solution would change across this range of future pathways. For lower voltages, we have considered how the volume of activity would need to flex to achieve faster or slower uptake scenarios.

The table below illustrates how our plan would flex to adapt across this range. This means we have a robust investment plan which can adapt to our customers' needs across the range of credible Net Zero pathways. Where actual levels are higher than our baseline scenario, we will use uncertainty mechanisms to address the difference.

Our RIIO-ED2 intervention plan and the credible scenario range

High scenario		Looped service cables and cut out units	LV Network	Switchgear (Fault level)	Other load Related	Load Related Expenditure (excl. connections)
EVs: 1.02m **Heat Pumps:** 0.63m **Generation:** +5.9GW	RIIO-ED2 interventions needed	70,380	904km of LV cable	34 33kV sites		
			1,330 HV/LV substations	8 HV sites / groups		
				41 Fault level monitors / management		
	RIIO-ED2 investment	£161.7m	£186.9m*	£48.8m	£174.4m	£571.8m
Baseline scenario						
EVs: 0.67m **Heat Pumps:** 0.37m **Generation:** +4.7GW	RIIO-ED2 interventions needed	**43,384**	**563km** of LV cable	**28** 33kV sites		
			708 HV/LV substations	**8** HV sites/groups		
				41 Fault level monitors / management		
	Intervention rate compared to RIIO-ED1	>50x intervention rate	11x cable interventions	*Volumes are broadly comparable with RIIO-ED1. This is only made possible because of our leading innovation in this area.*		
			4x substations interventions			
	RIIO-ED2 investment	**£100m**	**£92.9m***	**£40.0m**	**£136.4m**	**£369.3m**
Low scenario						
EVs: 0.65m **Heat Pumps:** 0.34m **Generation:** +4.7GW	RIIO-ED2 interventions needed	40,921	540km of LV cable	28 33kV sites		
			680 HV/LV substations	8 HV sites/groups		
				41 Fault level monitors / management		
	RIIO-ED2 investment	£94.3m	£89.1m*	£40.0m	£133.7m	£357.1m

*Excludes modifications to the HV network.

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LV service cables and cut out units

Due to our advanced forecasting and modelling work, we have a high level of confidence in the required intervention volumes in RIIO-ED2 for LV service cables and cut outs. The delivery of interventions will be reviewed regularly alongside our EV-Up and Heat-Up enhanced forecasting so that the timing of delivery provides maximum benefits to our customers.

For our long-term strategy for managing looped services, see Annex 4A.22: LV Services and Cut Outs.

Why haven't we considered flexibility services as a solution to looped service cables?

Looped services can be overloaded up to three times their rating as customers adopt LCTs. **This carries a significant safety risk.**

Domestic flexibility services are when customers enter into a contract to manage their consumption. They are voluntary and are procured from a competitive market.

In the case of service cables, there is no competitive market, as only the customers connected to the service cable can solve the constraint. If the service cable isn't replaced, the customers will be subject to an enduring safety risk and constraint.

Flexibility cannot manage looped services due to the level of potential overload and the associated safety risk.

LV network

We will deliver a portfolio of interventions based on capacity requirements, timing, and network characteristics.

We have considered a range of intervention options: energy efficiency, flexibility services, network reconfiguration, smart solutions (such as LV automation, onload tap changers, monitoring, and solid-state transformers), enhanced asset ratings, and network reinforcement.

We will provide additional capacity at local distribution substations in 708 network areas using flexibility where it is efficient to do so. Where flexibility solutions are not viable, we will use smart or traditional solutions including upgrading existing equipment in 354 substations; applying innovative solutions in 212 substations; and installing 142 additional transformers.

See Annex 4A.2: Load Related Expenditure Strategy: Engineering Net Zero for more information.

Switchgear

We will deliver a balance of industry-leading innovation and conventional options to manage fault level.

We have considered a range of intervention options: switchgear replacement, higher impedance transformers, series and bus section reactors, network reconfiguration, active fault level management, and real-time fault level management.

We will upgrade equipment to manage fault level at 36 substations/groups.

We will roll out fault level monitoring (an innovation we developed in RIIO-ED1) in constrained areas, targeting 38 sites. We will use innovative active fault level management automation systems to facilitate new generation in three fault level constrained areas. We will seek further opportunities to use innovation through RIIO-ED2.

See Annex 4A.2: Load Related Expenditure Strategy: Engineering Net Zero for more information.

Energy efficiency as a potential intervention in RIIO-ED2

Energy efficiency measures can help defer or avoid other types of network interventions, reduce end-use energy consumption (and therefore customer bills) and CO_2 emissions, reduce network losses, and potentially reduce the total system peak demand that needs to be supplied by generators.

Given these customer benefits, we considered it as a potential intervention for each RIIO-ED2 load-related reinforcement. Where energy efficiency is not currently the most effective intervention and we have had to assume the use of network reinforcement, we will reassess the case for energy efficiency before the reinforcement starts. This ensures we will deliver energy efficiency where it is the most cost-effective solution to a network constraint.

In addition, we plan to work alongside local authorities when they develop their Local Heat and Energy Efficiency Strategies (LHEES) and Local Area Energy Plans (LAEP). We have defined this as our **Strategic Optimiser** role, in which we will support stakeholders to identify opportunities for economical LCT connection and energy efficiency that will most benefit customers. For more information on our Strategic Optimiser role, refer to the whole systems section on page 63.

Our stakeholders and customers support our RIIO-ED2 intervention plan.

Where can I get more information?

For more information see Annex 4A.2: Load Related Expenditure Strategy: Engineering Net Zero.

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Delivering a new approach to LV network management

The LV network is on the front line of customer decarbonisation – it's here that the EV chargers and heat pumps needed for Net Zero will connect and, with volumes increasing, begin to cluster. This is a big change, and it's why we need to do more than just increase network capacity – we need a new approach to LV network planning and operation. To enable Net Zero safely, efficiently, and on time, this new approach needs to be driven by data, integrate different systems and technologies, and increase visibility of the LV network.

To achieve this, we will deliver a new integrated real-time network planning platform. We call this our Engineering Net Zero (ENZ) Platform. It stems from our award-winning RIIO-ED1 Network Constraints Early Warning System (NCEWS) innovation project and is an evolution of our ENZ model.

The ENZ Platform will integrate four previously independent data sources – network monitoring, smart meters, forecasting, and asset condition – and combine them with a full connectivity model of the entire network. It continuously runs to produce real-time network analytics to facilitate data-driven planning and operational decisions. We will increase its capability by widescale deployment of LV network monitors in RIIO-ED2.

This industry-leading approach means that we have an integrated data and analytical system covering the entire network. We now have data-driven visibility of the LV network. We can now make more informed real-time operational decisions which improve the safety, reliability, and efficiency of the network for our customers. And we can now better coordinate the range of load related, asset management, and DSO interventions, to reduce cost and disruption for our customers while delivering what they want. This will bring a range of benefits, including:

- Customers will be less affected by faults, as our control engineers will have live visibility of the LV network and so can respond more quickly.

- Customers won't have to wait as long for LV connection offers – in fact, they will be able to self-generate them from our website.

- Reduced impact on customers' bills, as network planners will have asset condition and utilisation data at their fingertips for all voltages, meaning we can coordinate capacity and asset health interventions and prioritise them by urgency.

- Flexibility providers will have more notice of potential constraints, giving them more time to participate.

The platform marks a significant move forward for us as a network, and a step change for our customers. It will allow us to predict and respond to customer needs more quickly, increase the reliability of our customers' supply, and operate the network more efficiently.

For more information on the ENZ Platform see the diagram on page 49 and Annex 4A.1: Future Systems Strategy.

The Net Zero electricity system is going to be underpinned by data – LV network monitoring is a key source of that data

Network monitors provide visibility of the network. The data they deliver helps us efficiently and safely plan, develop, and operate the network to meet our customers' needs. For this reason, our network has extensive monitoring at the HV and EHV voltage levels. However, there is very little monitoring on the LV network as there hasn't historically been a need.

The transition to Net Zero means that LV customer power flows will increase, and the rise of LV customers actively engaging with markets means that power flows will become much more dynamic. We also expect a surge in notifications, connection applications, and customer enquiries to connect low carbon technologies. These changes are going to require significant investment in the network, our operational capabilities, and our internal processes. The Net Zero electricity system is going to be underpinned by data. LV network monitoring is a key source of that data.

LV network monitoring provides the data we need for:

- Getting more out of existing network assets by safely operating networks closer to limits.

- Making smarter and more coordinated network investments.

- Facilitating flexibility solutions and increasing the pool of providers and competition.

- Responding to network faults more quickly.

- Automating LV connection offers.

- Delivering the baseline DSO functions.

- Improving management of network losses.

- Encouraging innovation by sharing data with third parties.

Given this, we need to increase LV monitoring over RIIO-ED2. By the end of RIIO-ED1 less than 8% of our 31,808 HV/LV substations (≥200kVA) will have monitoring. During RIIO-ED2 we will deploy monitoring at an additional 14,102 of these substations to increase this coverage to 52%, covering 76% of customers.

LV network monitors are complementary to the increasing penetration of smart meters, and customers get the greatest benefit when these two data sources are combined.

For more information see Annex 4A.21: LV Network Monitoring.

Real-time analytics in RIIO-ED2: Our ENZ Platform

Data Inputs

Monitoring and smart meter data

We will install monitoring at 14,102 HV/LV substations in RIIO-ED2 – 52% of HV/LV substations ≥200kVA will be monitored by 2028.

Our EnergyIP platform will collect smart meter data.

Forecasting data

Long-term generation and demand forecasts (DFES)

T-4 day PRAE forecasts to plan operational measures

Weather normalised data (our WaNDA project)

Enhanced LCT uptake forecasts (EV-Up & Heat-Up)

Asset condition data

Asset health, criticality, and risk data from our Condition Based Risk Management (CBRM) system.

Real-time ENZ Platform

This will perform automated power flow analysis for the entire network in near real-time using the four data inputs. Combining these data sources with this real-time modelling capability means in RIIO-ED2 we will be able to:

Identify network constraints in real-time	*Enables us to intervene before constraints escalate, and only dispatch flexibility when it's needed, reducing costs for customers.*
Forecast network constraints in the near future	*We can give the flexibility service markets time to respond and increase whole system coordination.*
Automate the design of LV connections and LV reinforcements	*We will be faster to respond to and connect customers. We will be able to process the forecast surge in connection applications and save at least £20m in staffing costs.*
Automate LV flexibility tendering and management	*We will reduce the overheads of flexibility, making it a more cost competitive solution.*
Manage LV faults	*We will reconnect our customers more quickly after a fault.*
Coordinate condition driven replacement with capacity driven reinforcement	*Delivery programmes will be less disruptive and more cost-effective. We will make more efficient intervention decisions, considering a greater range of data than before.*
Track LCT uptake	*We will make more cost-effective and timely interventions for our customers.*

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Delivering interventions efficiently – strategic investment

In RIIO-ED2 we plan to use strategic investment to bring forward and coordinate additional capacity where it benefits customers as they transition to Net Zero; this 'touch the network once' approach is more cost-efficient and less disruptive than reactive interventions, and means the capacity is ready when customers need it. It is also essential for delivering the increased volumes of interventions needed to accommodate Net Zero.

This is a change from previous price controls. It allows us to consider a longer horizon in our investment planning, and lower the overall whole-life cost of our assets that are capable of performing through multiple price control periods.

How we'll use strategic investment

For some asset types, we will deliver proactive intervention programmes to coordinate the delivery of interventions.

Where multiple LV service cables within a single street are forecast to need replacing within RIIO-ED2, we will replace them in one go, before the first LV service constraint occurs. This is instead of reactively replacing them one at a time.

We will look to coordinate this with any work needed on the local LV network.

When delivering network assets that will still be on the network in 2050, we will size the capacity of the assets to accommodate Net Zero.

When replacing a looped service cable so it can accommodate an EV, the new service cable we install will be sized to accommodate a heat pump too.

Where 5kVA, 10kVA, 15kVA, or 25kVA pole mounted transformers need to be replaced due to their condition, we will replace them with 50kVA models as standard.

Customer benefit

Money saved	**Less disruption**	**Ready to use**	**Long-term planning responsibility**
this method is more financially efficient than having to repeatedly intervene on the same area of network.	*there will be fewer supply interruptions and roadworks outside customers' homes.*	*customers don't have to wait before they can use EVs and heat pumps, as the capacity is already in place.*	*delivering interventions in RIIO-ED2 and avoiding revisiting areas of network before 2050 helps avoid an undeliverable spike of reinforcements in later years – 'flattening the curve'.*

Customers and stakeholders support our use of strategic investment to deliver capacity for customers efficiently and on time.

Building on RIIO-ED1 innovation to deliver interventions efficiently

Innovation developed in RIIO-ED1 in the following areas will help us deliver efficiently in RIIO-ED2. For more information refer to Annex 3.1: Innovation Strategy.

Fault level monitoring and active management

In RIIO-ED1, we partnered with Outram Research Ltd to develop the world's first real-time fault level monitor. For the first time for any DNO, this gives an accurate real-time understanding of network fault level. We combined this innovation with a network management scheme – another first. These innovations allow us to safely connect more generation without triggering fault level reinforcements.

This is good for our generation customers, who can connect quicker and at lower cost. It's also beneficial for our wider customer base, who pay a portion of interventions to manage fault level.

Due to these advantages, we have included this system in our plans to manage 41 sites with higher fault levels and to facilitate lower cost generation connections.

Forecasting demand growth and network impact

We have delivered a suite of innovation projects covering forecasting (EV-Up, Heat-Up, and Charge) and modelling (NCEWS and Network Analysis and View, NAVI). These projects help us better predict customer LCT uptake, and more accurately assess the network impact of that uptake.

This means we can better target the right interventions at the right time. This results in more efficient expenditure, facilitates the use of flexibility services, and reduces delays for customers waiting for capacity. Consequently, we used these tools to develop our RIIO-ED2 Business Plan and will continue to use them throughout RIIO-ED2.

Flexibility services combined with network automation

We have led the way in the development and use of flexibility services during RIIO-ED1. We were the first DNO to tender for reactive power, and the first to offer site-specific pricing.

At 132kV, we have combined flexibility services with a network automation scheme. One such scheme in the Carrington-Fiddlers Ferry group acts as a secure backup to flexibility – in the event that flexibility is needed and not available, the network automation secures the network by temporarily reconfiguring it. Such innovative arrangements have allowed us to defer significant investment, which financially benefits customers. We will embed this capability as business-as-usual in RIIO-ED2.

How we will deliver our load related intervention plan

The volumes of looped service, LV monitoring, and LV network interventions we need to deliver in RIIO-ED2 are significantly higher than those in RIIO-ED1. To prepare, we have:

Engaged with our supply chain to confirm that they can deliver the volumes.

Developed plans to recruit more staff, retrain staff from other areas of the business, and outsource some work to contractors.

Planned to use strategic investment to bring forward and better coordinate efficient investment. Grouping the delivery of interventions reduces the time needed per intervention. This is because some fixed-duration activities, such as travel to site, can be shared across multiple interventions.

For more information on how we have assured the feasibility of delivering these volumes see Annex 6.1: Delivering Our plan.

For more information on forecasting and our approach to creating an optimised business plan see Annex 4A.2: Load Related Expenditure Strategy: Engineering Net Zero.

Our commitments – developing the network of the future

We will install innovative fault level monitoring across 41 constrained locations on our HV and EHV network to help safely accommodate more renewable generation.

We will develop a network that enables our communities to transition to Net Zero with over 700 smart-substations, 800km of cable, and 43,000 service cables. We will size and co-ordinate interventions to 'touch the network once' where this delivers benefits for our customers.

We will continue to assess flexibility, smart, and reinforcement solutions for all of our load related interventions, and carefully select the most efficient, co-ordinated, and economical interventions. This will include assessing energy efficiency actions ahead of starting any work.

We will increase visibility of our low voltage networks by delivering over 14,000 LV network monitors at large secondary substations and enhancing our use of smart meter data. This will enable us to maximise utilisation of the existing network, identify targeted areas for upgrades, and facilitate customer flexibility.

We will deliver £84m of savings for our customers in RIIO-ED2 by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials. We will keep innovation at the core of everything we do, to continue to deliver benefits for our customers and the wider energy system.

We are using proven innovation to efficiently deliver the interventions our customers need.

Welcome to our plan

Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

Assuring our RIIO-ED2 Business Plan

Summary

Our role as Distribution System Operator

This section outlines our ambitions and plans for the transition to a DSO.

To meet the challenges that the energy system faces means there is a clear need for roles, activities and infrastructure to meet our customers' evolving needs, deliver Net Zero, and ensure the continued safe, reliable, and efficient operation of the distribution network and wider energy system for all customers.

Most of these roles and activities are evolutions of existing business-as-usual activities, whilst others are new. These roles and activities in turn require new enabling tools, processes, and capabilities. This is what Distribution System Operation (DSO) is to us: the set of roles, activities, and infrastructure that we plan to deliver, so that we can continue to serve our customers and communities.

They include more complex planning solutions, smarter and scalable network operation infrastructure and being a neutral facilitator of an open and accessible distribution energy resources (DER) services market, and coordinating DER services to deliver a safe, efficient, and reliable whole system. These must be delivered at a pace that meets our customers' needs.

What is a DSO?

A Distribution System Operator (DSO) securely operates and develops an active distribution system comprising networks, demand, generation and other flexible Distributed Energy Resources (DER). As a neutral facilitator of an open and accessible market it will enable competitive access to markets and the optimal use of DER on distribution networks to deliver security, sustainability and affordability in the support of whole system optimisation. A DSO enables customers to be both producers and consumers; enabling customer access to networks and markets, customer choice and great customer service – **as defined by the Energy Networks Association**.

DFES forecasts and ENZ modelling to quantify DSO drivers and determine the right approach

Our Distribution Future Energy Scenario (DFES) forecasts provide an outlook for key customer demand and generation metrics up until 2050. These forecasts influence the timeline for the delivery of DSO infrastructure and the phasing of products and services across our networks to meet emerging need. Our Engineering Net Zero (ENZ) Modelling identifies constraints, evaluates interventions and will be further developed to provide real-time analytics to underpin the management of the network in RIIO-ED2.

DSO Infrastructure

We will deploy DSO infrastructure where there is both a needs case and benefit within RIIO-ED2. This includes voltage-specific deployments of DSO infrastructure in areas forecast to become constrained based on our DFES forecasts and our ENZ Model. This centres around the deployment of Constraint Management Zones (CMZs), and building on our ANM rollout in DPCR5 and RIIO-ED1. Each CMZ has functionality that includes flexibility, ANM, Active Fault level Management, Service Co-ordination and voltage management. This CMZ infrastructure supports the development of markets, facilitates the exchange of data and encourages market growth and local competition.

Benefits

The benefits case for DSO has been established using an assessment of the direct benefits generated using a counterfactual comparison against traditional reinforcement and Ofgem's CBA template to consider the whole life comparisons.

Our indicative analysis identified direct benefits of delaying or avoiding reinforcement of up to £334m over the 45-year period. This does not include any of the indirect benefits that would be delivered through additional functionality and the delivery of services.

Incentive

To promote the efficient delivery of DSO, an Output Delivery Incentive (ODI) has been proposed by Ofgem. We led the DSO Working Group across all DNOs for over six months to deliver the first framework proposal for the ODI to Ofgem. Development of the framework is still ongoing with Ofgem.

DSO is a collaborative endeavour and therefore we do not believe that ours or any other DNO's network present specific issues to be overcome outside of this collaboration.

Our DSO journey so far

In October 2016, we were the first DNO to publish a DSO Vision. Since then, we have worked alongside industry, stakeholders, and our customers to progress DSO. This business plan is based on that work and will continue to build an effective DSO environment for the benefit of existing and future customers.

We are already evolving the way we design, build, and operate our networks, implementing innovative solutions, and embracing new technologies. We are best place to continue leading the delivery of the DSO roles, activities, and infrastructure.

You can find more detail in:

Annex 4A.1 – our Future System Strategy provides an overall view of our Engineering plan.

Annex 4A.3 – our DSO Strategy details our stakeholder endorsed plans and how we will deliver RIIO-ED2 DSO baseline expectations.

Annex 4C.1 – our Digitalisation Strategy explains how we will digitalise our processes, systems, equipment, and workforce.

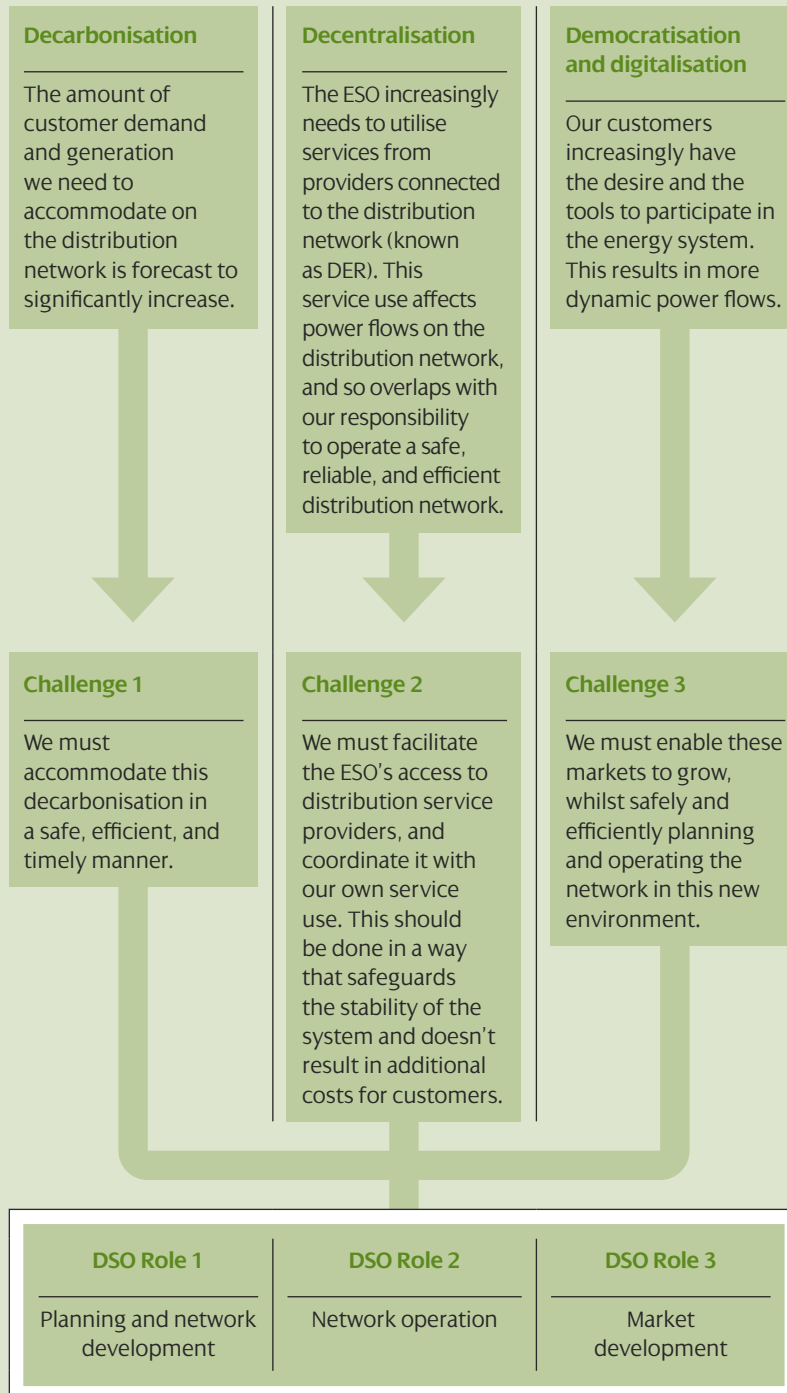Annex 4C.2 – our Data Strategy on how we carefully collect, manage, share, and extract maximum value from data.

Annex 4A.21 – our LV Network Monitoring Strategy explains how we will increase visibility of the LV network.

Annex 4A.23 – our evidence that supports our proposals (EJPs, CBAs and BPDTs).

Why we need to deliver in RIIO-ED2

Ofgem has categorised DSO into three roles, which are split into five activities. These are underpinned with a set of DSO baseline expectations. The requirement to deliver these in RIIO-ED2 is driven by three main energy system changes.

Decarbonisation	Decentralisation	Democratisation and digitalisation
The amount of customer demand and generation we need to accommodate on the distribution network is forecast to significantly increase.	The ESO increasingly needs to utilise services from providers connected to the distribution network (known as DER). This service use affects power flows on the distribution network, and so overlaps with our responsibility to operate a safe, reliable, and efficient distribution network.	Our customers increasingly have the desire and the tools to participate in the energy system. This results in more dynamic power flows.

Challenge 1	Challenge 2	Challenge 3
We must accommodate this decarbonisation in a safe, efficient, and timely manner.	We must facilitate the ESO's access to distribution service providers, and coordinate it with our own service use. This should be done in a way that safeguards the stability of the system and doesn't result in additional costs for customers.	We must enable these markets to grow, whilst safely and efficiently planning and operating the network in this new environment.

DSO Role 1	DSO Role 2	DSO Role 3
Planning and network development	Network operation	Market development

Together, these energy system changes will result in a more complex, dynamic, and interactive energy system. These changes also offer standardised tools and APIs (which specify how software components interact) for cost-effective interaction between our systems and DERs or their agents.

This allows us to increase transparency, make more coordinated intervention decisions, and welcome new providers and markets. We will deliver DSO roles, activities, and infrastructure to enable these changes, whilst ensuring that our customers have a safe, reliable, and efficient supply of electricity.

What we will deliver in RIIO-ED2

In response to these emerging challenges, and to deliver Ofgem DSO baseline expectations, we will deliver stakeholder-endorsed DSO roles, activities, and infrastructure in RIIO-ED2. We will make six main investments in RIIO-ED2 to do this:

1. Install 14,102 LV network monitors. Combined with smart meter data, this step change in LV network visibility will help us make data-driven planning decisions, share more data with customers, get more out of existing network capacity, and support the growth and use of flexibility service markets. see Annex 4A.21: LV Network Monitoring.

2. Implement 22 constraint management zones (CMZs). This fundamental shift in network management and control capabilities will allow us to work with customers to actively manage network conditions to stay within available network capacity and operational limits. This supports quicker and lower cost connections and the use of flexibility service markets. See Annex 4A.3: DSO Strategy.

3. Expand the ENZ platform. This integrated real-time network platform will help us safely plan and operate more dynamic and complex networks, facilitate LV flexibility service use, and improve the identification and sharing of network constraints. see Annex 4A.1: Future System Strategy.

4. Invest in our Operational IT and telecoms. These systems and infrastructure are vital for DSO: increased network monitoring; collating and sharing data with third parties; smart network technologies to manage a more dynamic and interactive energy system – these all depend on safe, resilient, and cyber secure operational IT and telecoms. See Annex 4A.16: Operational IT and Telecoms.

5. Invest in new IT platforms and digital systems. Several DSO systems depend on this, including systems to analyse and forecast requirements, share data, and facilitate flexibility markets. See Annex 4C.1: Digitalisation Strategy.

6. Ensure we have the right business structure and people to deliver DSO.

This investment will provide new functionality to support the growth and use of flexibility service markets, analyse and share data, enable greater transparency and competition, help us coordinate whole system operation, and enhance our ability to plan and operate a more complex system. This will deliver a network with greater flexibility and optionality to meet our customers' requirements as GB transitions to Net Zero.

Common to all these investments is data. We believe sharing data with our customers and stakeholders will unlock additional value from our system and encourage others to develop their capabilities. SeeAnnex 4C.2: Data Strategy.

Together, these and other investments deliver our stakeholder-endorsed DSO Strategy and exceed Ofgem's DSO baseline expectations.

Constraint Management Zones: *supporting decarbonisation and flexibility markets*

Through DPCR5 and RIIO-ED1 we've developed several Constraint Management Zones (CMZs). We'll implement a further 22 CMZs in RIIO-ED2.

A Constraint Management Zone (CMZ) is a geographic region served by an existing network where network requirements related to the security and operability are met using local services. Our ambitious RIIO-ED2 plans seek to roll out CMZs more widely, forming the backbone of our DSO infrastructure, and to extend their functionality to coordinate a wide variety of DSO functions.

This fundamental shift in network management and control capabilities will allow us to work with customers to actively manage network conditions to stay within available network capacity and operational limits. This supports decarbonisation through quicker and lower cost connections, and the growth and use of flexibility markets.

CMZs will support:

- Active Network Management:
- Active Fault Level Management (AFLM)
- Flexible Connection Management
- Flexibility Services
- Voltage Management
- Service Coordination with ESO and DSOs

Built on successful innovation

DPCR5 – Accelerating Renewable Connections (ARC) project, enabled additional 160MW of generation to connect in constrained parts of the Network.

RIIO-ED1 – Extensive deployment of ANM in Dumfries & Galloway and North Wales, enabling up to 500MW of generation to connect to the Network.

RIIO-ED2 – The DSO platform will manage demand, generation and fault-level in real-time and develop new markets (e.g secondary trading).

Kirkintilloch DSO Control Centre
SPD Network Consraints Managment Zones

1. Dunbar	8. Earlstoun Hydro
2. Dumfies & Galloway	9. Livingston East
3. Berwick	10. Galasheilds
4. Coylton	11. Dunfermline
5. Bonnybridge	12. Dalmarnock
6 Saultcoats B	13. Linnmill
7. Redhouse	14. Kaimes
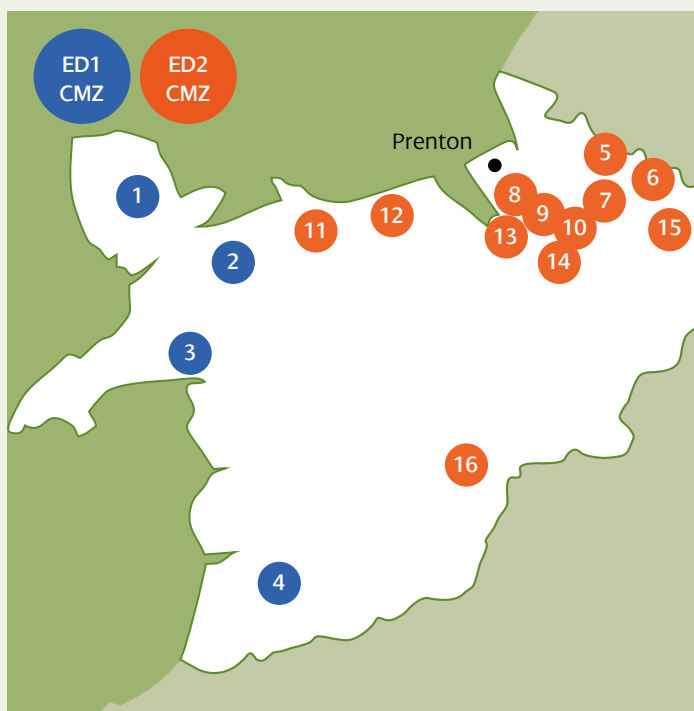
Prenton DSO Control Centre
SPM Network Consraints Managment Zones

1. Amlwch	9. Capenhurst
2. Bangor	10. Ince
3. Four Crosses	11. Colwyn Bay
4.Aberystwyth	12. St. Asaph
5. Bold	13. Deeside
6. Warrington	14. Chester
7. Percival Lane	15. Lostock
8. Rock Ferry	16. Legacy

How our initiatives are enabling us to exceed baseline expectations

The following diagram provides an illustration of our assessment into where we plan to meet baseline expectations and how our DSO Strategy enables us to go above and beyond Ofgem's baseline expectations for DSO. Further detail on our proposed activities to achieve this follow in the tables on pages 56-58.

Each of the five segments represents one of the five activities which align to the three roles of DSO shown in the centre of the diagram. The dots within each segment on the diagram correspond to each of Ofgem's baseline expectations for DSO.

The red dashed line represents the expected performance level DNOs are to operate at to meet the baseline expectation set out in the Sector Specific Methodology Decision and the Business Plan Guidance. The position of each dot on the diagram indicates our ambition against each baseline expectation based on our strategies and initiatives that are described in full detail in the the next sections.

Baseline expectations that are on the red dashed line are those that we are confident in meeting the stretching targets set by Ofgem and those towards the outer edge of the diagram represent where our DSO Strategy and initiatives will help us not only to meet but go above and beyond for our customers in transitioning to a Net Zero future. For more detail on how we will deliver on these ambitions in RIIO-ED2 please refer to Annex 4A.3: DSO Strategy.

Role 1
Activity 1.1

1. Enhanced forecasting, simulation, modelling & increased network monitoring

2. Effective processes for sharing planning information

3. Robust optioneering process

Role 2
Activity 2.1

4. Improve network visibility

5. Provide ESO with info on DER plans

6. Understand & gather DER characteristics

7. Share data with network users

Role 2
Activity 2.2

8. Clear decision making framework

9. Facilitate secondary trading

10. Communicate Decision Making Framework

11. Scalable dispatch instruction infrastructure

Role 3
Activity 3.1

12. Publish relevant data to assist market participation

13. Develop info communication strategy

14. Engage with market to understand needs

15. Tailor information provision and engagement approaches for different participants.

16. Ensure data that is published is accurate and unbiased

Role 3
Activity 3.2

17. Develop clear process for securing flexibility

18. Identify the optimum combination of longer and short term contracts

19. Provide necessary data to facilitate secondary trading

20. Provide Market Support Services

21. Manage potential conflict of interest

Legend:
- ● Ambition against specific expectation
- – – Baseline expectation
- ■ Below Baseline
- ■ At Baseline
- ■ Exceeding Baseline
- ■ Substantially exceeding Baseline
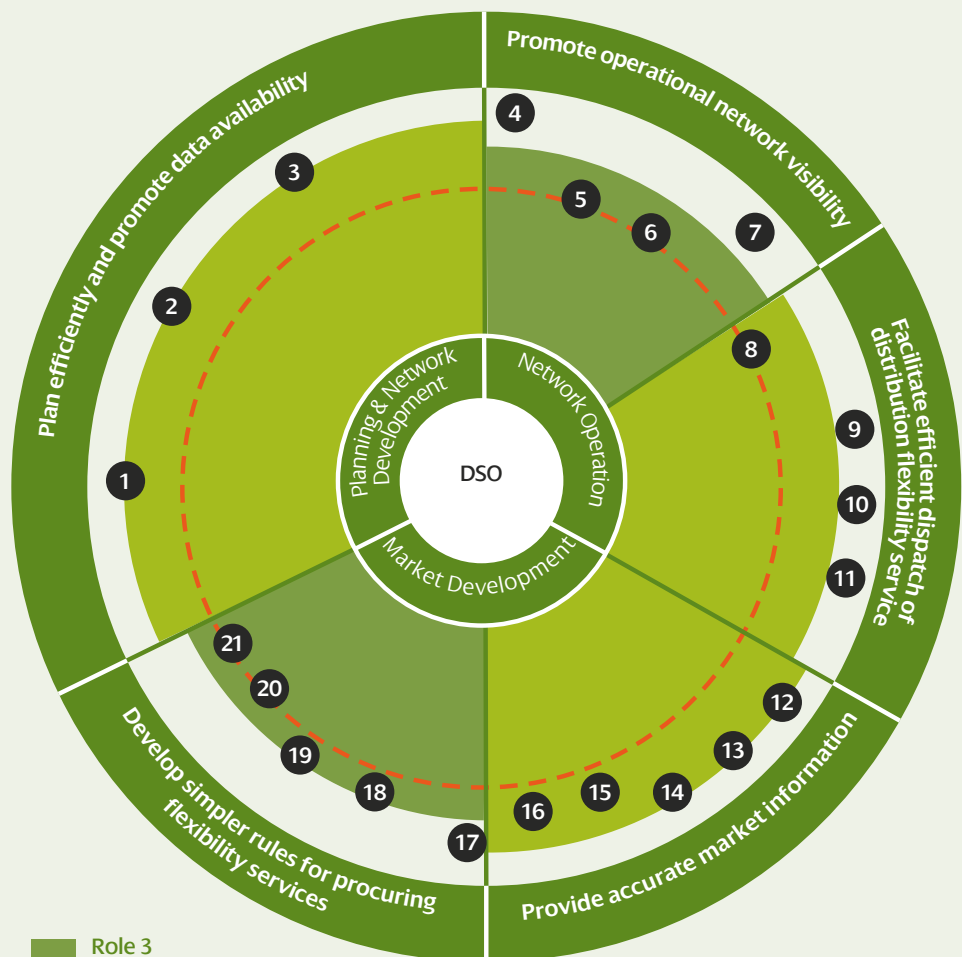
DSO Role 1: Planning and network development

Activity 1.1. Plan efficiently in the context of uncertainty, taking account of whole system outcomes, and promote planning data availability

Purpose: DNO planning processes are clear; high-quality, data driven decisions are made; and DNOs provide stakeholders with relevant info to inform their own decision making

Enhanced insight will help us identify precisely where and when we need to invest

We'll continue to use and further develop the enhanced EV-Up and Heat-Up forecasting tools we developed in RIIO-ED1. These assess spatial, demographic, and socioeconomic data to forecast EV and heat pump uptake for every customer we serve. By better understanding our customers' requirements we can make more targeted, efficient, and timely network interventions.

Monitoring will enhance our forecasting, interventions and market facilitation

The installation of over 14,000 LV network monitors will help us plan efficiently, establish an accurate view of existing spare capacity, and produce enhanced forecasts of future customer capacity needs. These provide better insight into when existing capacity levels will be exceeded: when and where we need to intervene; the nature of the constraint (current or voltage); and how much additional capacity is needed – helping us to identify the best and most timely solution.

Increased LV monitoring means we can publish more information about our LV network. This means we can support ICPs and IDNOs more effectively whilst increasing our efficiency. They will benefit from self service for their own quotations (levelling the playing field), and have the information to better understand and audit our decisions (increasing transparency).

Our LV Monitoring Strategy will ensure we are delivering LV monitors where they provide value, and that they are complementary to smart meter data.

ODI Efficient Operation Metric – Network Monitoring

Proposed DSO Output Delivery Incentive

Our proposal for the new DSO ODI will measure and report our progress against our initiatives through metrics agreed with Ofgem and Industry. The structure of this incentive will be formalised with Ofgem at final determinations. These boxes show example linkages although these are not mutually exclusive.For more information refer to Annex 5C.5: Output Delivery Incentives (ODIs)

Improve our capability to make data-driven network planning decisions

Our ENZ Platform will deliver enhanced network modelling. This combines enhanced forecasting data, LV monitoring data, smart meter data, asset condition data, and a full model of our entire network (from customer cut out up to the transmission network) to produce detailed network analytics, considering the range of Net Zero pathways.

Data Metric – Data and Modelling capabilities

Continue our commitment to open data

We'll go beyond creating a data sharing standard – our comprehensive Digitalisation Strategy will identify a whole new range of relevant data sources and share these securely as part of our commitment to open data. We'll report the percentage of approved datasets that are shared and aim to make 100% of the Ofgem agreed datasets available, within fixed timescales. We'll continue to use and develop our SDIF tool to share planning information (including whole network models) with other network companies and interested parties.

Third parties will be able to audit our use of flexibility services and our intervention decisions

We'll continue to be transparent in how we value flexibility services and publish clearing prices.

Service Metric – Evidence of shaping and tailoring offerings

Continue to use transparent and coordinated network planning processes

These value flexibility, energy efficiency, smart, and traditional interventions on an equal and impartial basis. We'll continue to use the Common Evaluation Methodology. Our intervention decisions will consider the option value provided by shorter-term interventions during periods of uncertainty – our enhanced forecasting and ENZ Platform mean we can go beyond baseline.

Service Metric – Evidence of shaping and tailoring offerings

Deliver a significant increase in operational IT and telecoms infrastructure

This is required to support the LV monitoring roll-out, which is a critical enabler to our activities across all three roles.

DSO Role 2: Network operation

Activity 2.1 Promote operational network visibility and data availability

Purpose: DNOs to share relevant network operations data with stakeholders, and to ensure that DNOs have sufficient network knowledge to safely and reliably operate their network

Better network visibility for all

LV monitoring at over 14,000 secondary substations will significantly increase network visibility and the data we share with third parties.

Data Metric – Data Sharing Method Metric

Improve identification of network constraints in both operational and planning timescales

Our ENZ Platform will combine LV monitoring data with smart meter, forecasting and asset condition data for real-time network analytics.

Minimising avoidable disconnection of DER

We'll use asset registers, contract data and system data to record DER characteristics to avoid potential DER disconnection events.

An increasingly coordinated approach with the ESO

We'll continue to work closely with the ESO, through the ENA, to support co-ordination of DER flexibility. Our systems will enable increased two-way exchange of data with the ESO to support the timely notification of dispatch intentions.

Use and enhance our near-time forecasting platform

With demand and generation forecasts for up to four days ahead, down to LV feeder level, we have better visibility to plan our use of operational measures such as flexibility services.

Efficient Operation Metric – Published Forecasts

Better use of existing and future data

We'll share operational data with our customers, stakeholders and market participants through our online data portal and digital systems. New processes will drive continuous improvement in the availability, accessibility and quality of our data at higher volumes.

ODI Data Metric – Open Data & Data Sharing Metric

Activity 2.2 Facilitate efficient dispatch of distribution flexibility services

Purpose: developing operability capabilities and actions, to ensure DNOs facilitate DER dispatch that is economical and safe

Enhanced transparency

We'll create an engineering standard for DSO actions and a policy outlining our Decision-Making Framework for instructing DER and coordinating dispatch with the ESO. We'll report annually on implementation and ongoing development of these.

22 CMZs and a scalable flexibility platform

This complementary scalable dispatch infrastructure will give us dual capability – to support markets and also have a safety net in the event of market failure.

Combine our ENZ Platform with our LV monitoring programme

More accurate definition of the time and scale of required flexibility will increase participation, free up providers to operate in other markets and give contracted providers more notice of dispatch.

Work with the ESO on better data sharing and DER dispatch

We'll improve coordination across distribution, transmission and other vectors as customers change energy patterns, our dependency on DER services grows, and interactions between distribution and transmission increase.

Service Metric – Annual Stakeholder Satisfaction Survey

Continue leading industry trials on facilitating flexibility trading

This includes testing of data provision and secondary trading arrangements. Leading development of products within the ENA Open Networks Projects supports ongoing development of standardised approaches for flexibility.

Co-develop with the ENA and our stakeholders

We'll continue to co-define and use industry standard definitions for types of flexibility services, and associated specifications and use cases.

Maintain competition through use of common standards

Our DSO infrastructure and data will use common and interoperable data formats, so we are not tied to a single providers, and it is easier for roles to be reassigned in the future.

DSO Role 3: Network operation

Activity 3.1. Provide accurate, user friendly and comprehensive market information

Purpose: ensure DNOs sufficiently inform stakeholders of information that will help them engage and participate in markets

Neutrally facilitate an open and accessible DER services market with greater clarity and ease of access to participants

Through our Flexibility Platform / Portal, we'll:
- offer a single point of information in respect of flexibility service requirements
- support third party platforms to 'plug-in' to the flexibility procurement process
- be transparent in our operation of an open and accessible DER services market
- send clear price signals to incentivise participation and service stacking across markets

Set an ambitious Service Level Agreement (SLA) for responding to specific data requests from our stakeholders

Throughout RIIO-ED2, we will also help our customers and communities identify opportunities from participating in the energy system.

Service Metric – Annual Stakeholder Satisfaction Survey

Provide easy access to more relevant, accurate and user-friendly data

We will do this via self-service portals or APIs to assist greater market participation.

Help market participants identify and value opportunities of their own

We will do this through continuing to be transparent in how we value flexibility services and to publishing clearing prices

Deliver a significant increase in operational IT and telecoms infrastructure

This is required to support the necessary data collection and sharing.

Increase the visibility of our LV networks

The installation of over 14,000 LV network monitors will provide us with more granular information, which can be shared with our stakeholders.

Activity 3.2. Embed simple, fair, and transparent rules and processes for procuring flexibility services

Purpose: ensure distribution flexibility services design leads to good competitive outcomes, including lower prices and innovative services

Transparent, efficient, whole system dispatch

We'll provide annual evidence of our processes, procedures, and systems including appropriate network infrastructure for coordinated dispatch, and use of common contractual arrangements.

Developing & Progressing Flexibility Metric – DSO Dispatch

Continuously evolve our products and services

We'll provide quantifiable annual evidence of how we are developing and amending our products and services.

Service Metric – Product & Services Assessment

Ensure the right traditional, smart, or flexible option is chosen

We'll use a Distribution Network Options Assessment, or similar, to ensure the right use of flexible, smart or traditional interventions. We will undertake continual assessments with lessons learnt to demonstrate the evolution our approach.

Developing & Progressing Flexibility Metric – Flexibility Solution Evaluation

Support the co-ordination of DERs providing flexibility

We are working closely with the ESO through the ENA to standardise process and contracts across the industry including minimising the use of exclusivity clauses.

Target 75% – 100% volume of flexibility tendered versus forecast flexibility

This will assess the flexibility market volume. We will report annually and assess progress to target at mid-point and end of period.

Developing & Progressing Flexibility Metric – Flexibility Market Volume

Facilitate flexibility trading and standardised approaches

We'll continue to lead the industry building on our significant trials for flexibility trading, including leading development of standardised approaches for flexibility.

Building on RIIO-ED1 innovation to deliver DSO efficiently

The DSO Roles, Activities and Infrastructure we plan to deliver in RIIO-ED2 build on innovations that we and other DNOs have delivered during RIIO-ED1. These innovations include:

Network management & dispatch innovations

In RIIO-ED1 we have trialled infrastructure which is able to automatically manage multiple customers to keep network power flows within limits. As this avoids the need for network reinforcement, this has enabled customers to connect more quickly and at a lower cost. These innovations are relevant for scaling up the use of flexibility services.

This RIIO-ED1 innovation means we can deliver 22 new CMZs during RIIO-ED2, that can facilitate greater use of flexibility services.

Monitoring innovations

In RIIO-ED1, we have delivered innovations which increase our visibility of the network, enabling us to make better data-driven decisions.

Because of these trials, we will roll-out two of these innovations (LV monitoring and real-time fault level monitoring) as business as usual in RIIO-ED2. These two innovations help us deliver our customers' needs and enable the new DSO operational systems needed for the Net Zero electricity system.

Forecasting and modelling innovations

In RIIO-ED1 we have developed forecasting and modelling innovations that have allowed us to identify precisely where and when we need to intervene. Of particular note is our Network Constraints Early Warning System (NCEWS) modelling tool, which won the prestigious IET and E&T Innovation of the Year prize in November 2019, and our EV-UP and Heat-UP forecasting tools, which predict the likelihood of EV and heat pump uptake for every household we serve.

These RIIO-ED1 innovations means we have been able to develop a targeted business plan that delivers our customers' requirements. They also enable core DSO activities – better network planning, more efficient and real-time network operation, and supporting market development.

Data and digitalisation innovations

In RIIO-ED1 we have trialled innovations which support the use of data and digital platforms. These include our Smart Data Integration Fabric (SDIF) project to deliver infrastructure to collect, analyse, and share data in a consistent manner, and our implementation of the Flexible Power digital portal, which stems from a Western Power Distribution innovation project.

These RIIO-ED1 innovations will help us deliver two key RIIO-ED2 DSO outputs: data management and sharing with third parties, and the digital platforms we need to safely interact with service providers.

Whole electricity system innovations

In RIIO-ED1 we recognised the increasing interactivity of transmission and distribution, and so trialled innovations to enable whole system coordination. These include our Project FUSION, which creates a competitive market to trade local DER flexibility, and partnering with the ESO on their Distributed Restart project to help restore power after a nationwide blackout.

These RIIO-ED1 innovations mean that we can deliver coordinated DSO activities in RIIO-ED2 which benefit all customers.

Transparency and conflict management innovations

We have led industry work to create a transparent process to value flexibility services. Based on this, we were the first DNO to publish site-specific pricing in our flexibility tenders, showing the market exactly what the value was to the network. This promotes openness and reduces perceptions of conflict of interest by allowing our reinforcement versus flexibility decisions to be audited.

How we will deliver DSO

DSO has been a key consideration for us since our first DSO vision in 2016.

We have carefully planned the delivery of DSO roles, activities, and infrastructure for RIIO-ED2 that will meet our customers' evolving needs, deliver Net Zero, and ensure the continued safe, reliable, and efficient operation of the distribution network and wider energy system for all customers.

We have done this by working with our suppliers and stakeholders, building on our award-winning innovation projects and remaining close to our own subject matter experts to determine both the critical path and our ability to deliver. This has been completed alongside independent assurance of our plans.

Our delivery considerations have included a focus on the following aspects:

Technical – assessing network and systems infrastructure, to make sure we deploy infrastructure efficiently.

Business – considering the regulatory and business landscape for DSO to encourage the right behaviours, and structure our business to deliver in a robust and transparent way.

People and skills – developing our existing staff and introducing new skills through recruitment.

Industry leadership – To establish industry commonality, we chaired the DSO Incentive Working Group delivering the first proposed Output Delivery Incentive framework for Ofgem This leadership shows our commitment to delivering a common customer experience and our DSO obligations.

For more information on how we have assured the feasibility of delivering DSO roles, activities, and infrastructure, see Annex 6.1: Delivering Our Plan.

Our commitments – our role as DSO

We will continuously work with the ESO, UK, Scottish and Welsh governments, and other key stakeholders, to accurately forecast our customers' future needs and to facilitate Net Zero pathways. This will include updating our DFES forecasts annually."

"We will be a neutral facilitator of an open and accessible distribution flexibility services market. This will have efficient dispatch processes and infrastructure, transparent procurement, and will be underpinned by a comprehensive conflict management regime.

We will share planning, operational, and market data with customers, stakeholders, and market participants through our systems and an online data portal. This will include visibility of our user friendly short & long-term forecasts."by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials. We will keep innovation at the core of everything we do, to continue to deliver benefits for our customers and the wider energy system.

A new incentive for DSO

Overview

Within the RIIO-ED2 framework, Ofgem introduced a new DSO ODI (Output Delivery Incentive) where a mid-point and end of period assessment will be carried out to review delivery of our DSO activities.

DNOs will be rewarded for exceeding baseline expectations – for example, developing enhanced forecasting, simulation and network modelling capabilities – or penalised for failing to meet these baseline expectations.

As this incentive is new to RIIO-ED2, and DSO baseline expectations are still emerging, significant Ofgem and industry collaboration has been required to shape the incentive. This is to drive the right behaviours to establish an effective and efficient DSO for our customers. We have been instrumental in the development of the DSO ODI, by leading the RIIO-ED2 DSO working group.

Whilst the ODI is still in development, our current proposal centres on appropriate metrics and Regulatory Reporting Evidence (RRE) to demonstrate our ambition in this area.

Proposed ODI Design

We are proposing the incentive value of 1% base revenue, where incentive reward is based on a combination of quantitative metrics and qualitative RRE reports.

We have grouped these into four distinct areas, covering Ofgem's three DSO baseline roles:

1. Delivering and Progressing Flexibility

2. Data and Digitalisation

3. Efficient Operation

4. Stakeholder and Customer Service.

We believe that the combination of the metrics, RRE reports, and the incentive value will drive the right investment and behaviours for DSO. It will develop over the course of RIIO-ED2, for the benefit of our customers.

For more information on our proposed ODI structure and metrics please refer to Annex 5C.5: Output Delivery Incentives (ODIs)

Whole system solutions

To realise the opportunities created by a more integrated, multi-vector energy system, we need new ways of working. By adopting a whole system strategy, we can take a broader view of our role to see where we can create value for customers and enable a Just Transition.

What does Whole System mean to us? Whole System is the ability to think beyond the confines of our immediate business; to deliver energy networks ready for Net Zero, for the benefit of our customers and the wider society. This will be delivered through collaborations, shared responsibility and a common desire to develop optimum solutions and opportunities.

We have developed a robust strategy to embed whole system thinking across all aspects of our business, from innovation and investment decision-making to collaboration with industry partners and stakeholders. Not only will this strategy create customer value while enabling a Net Zero transition, it will help us tackle fuel poverty and improve the environment and the wellbeing of our communities.

We will achieve these aims by embedding a comprehensive and coordinated whole system technique into our management and decision-making processes, delivered through these four pillars:

1. We will develop long-term collaborations with other parties, including with other energy companies, local authorities and devolved governments

2. We will deliver long-term value, based on investment appraisal, identification of risk, opportunities, and optimisation of the network

3. We will embed Whole System thinking at the core of every investment we make, using our partnerships to identify and deliver optimum solutions for consumers

4. We will use our innovation programme to push the boundaries of Whole Systems thinking.

You can find more detail in Annex 4A.26: Whole System Strategy

1. We will develop long-term collaborations with other parties, including with other energy companies, local authorities and devolved governments

We have built our RIIO-ED2 whole systems approach on a solid foundation of relationships and projects we delivered during RIIO-ED1.

Over the course of RIIO-ED1 we have deployed dedicated teams to work closely with the ESO and Transmission Owners (TOs) to find optimum solutions to issues across the transmission and distribution networks, including the Dunbar Active Network Management (ANM) scheme. Further details can be found in Annex 4A.26: Whole System Strategy.

We also continue to collaborate with other electricity network companies through our participation and leadership on the ENA Open Networks project, working together to lay the foundations for a smart, flexible energy system and the transition to Distribution System Operation (DSO).

Furthermore, we have have provided industry leadership on a range of other key policy areas, including data, digitalisation, DSO development and flexibility. Throughout RIIO-ED2 we will continue to work with ENA member companies to deliver a coordinated and consistent path to achieving Net Zero ambitions. Further details can be found in Annex 4A.3: DSO Strategy.

We will continue to collaborate closely in RIIO-ED2 including:

- Provide a dedicated team of technical specialists that will partner with local authorities and regional governments to support the development and implementation of Low Carbon Technologies (LCTs).

- Engage with 100% of local authorities and regional Government bodies to support the optimisation of network planning, design, and implementation of public EV charging and heat electrification initiatives.

Accelerating renewable connections – Dunbar ANM

The Dunbar ANM scheme allowed the connection of distribution renewable generators before transmission reinforcement works could be carried out, enabling outputs that would not otherwise have been realised.

Exports: over 1.5million MWh of generation over the last five years

CO_2 savings: c500,000 tonnes

Annual community benefit: estimated £180,000 a year

Beyond the electricity sector

In RIIO-ED1, in addition to collaborating with our industry peers, we have collaborated on wider energy sector whole system projects such as Flex Gas Forecasting and Net Zero NW, which seek to advance the gas networks' contribution to achieving Net Zero and importantly improve understanding of the role of electricity networks in achieving this goal.. Further details of these projects can be found in Annex 4A.26: Whole System Strategy.

We also continue to actively participate in the Energy Networks Association Gas Goes Green project and will continue to provide our support for the adoption of green gas solutions.

In RIIO-ED2, we will continue to work with parties beyond the energy sector, developing innovative whole system solutions with parties such as the Scottish and Welsh Governments, transport bodies, local authorities, academia, and industry.

Through our partnership on Project Pace (a collaboration with Transport Scotland and Local Authorities to deliver new public EV chargerpoints), the Scottish Government has committed funding of £5.3m to support its progression, evidencing its trust in our organisation and the value of collaboration.

We will continue to develop and refine our whole system approach during RIIO-ED2 as longer-term projects and collaborations mature and innovation projects transfer to BAU activity. Beyond this, we will advance our whole system strategy to expand on current relationships and include new collaborations. An example of this is the Whole System Charter, which will commit gas and electricity network parties to work together to deliver Net Zero through whole system principles. For more details, see Annex 4A.26: Whole System Strategy.

Whole system versus a traditional approach – integrated network management in Dumfries & Galloway

Much of the network in Dumfries & Galloway is subject to an export constraint. Our project here is the first of its kind, presenting a distribution solution to the management of transmission constraints across 11 Grid Supply Points (interfaces with the transmission network). It presents an alternative to traditional reinforcement and load managed schemes, providing a centrally managed ANM system capable of managing DER in a significantly more targeted and intelligent way, ensuring the curtailment of DG output is minimised.

Cost: **£8.7m**

Projected customer savings: **c£38.5m**

CO$_2$ savings: **522,000 tonnes**

The technology being developed for Dumfries & Galloway is capable of scaling to the rest of the network and is currently being developed for application in North Wales.

2. We will deliver long-term value, based on investment appraisal, identification of risk, opportunities, and optimisation of the network

We have developed our whole system strategy using a long-term planning horizon to drive value for customers and wider society, while recognising the uncertainties and risks on the path to Net Zero.

We have identified and quantified many of these uncertainties through the production of DFES forecasts, detailed on page 40. These scenarios reflect differing levels of customer ambition, government and policy support, economic growth, and technology development. To verify our forecasts and uncertainty quantification we will continue to proactively engage with stakeholders. This will help us make sure forecasts reflect the plans and ambitions of our communities.

An example of our value driven approach is our management of fault level issues. Here, we have collaborated with SP Transmission in conducting a whole system cost-benefit analysis to determine whether a transmission or distribution solution will be the most cost effective and efficient for our customers. For more details, see Annex 4A.26: Whole System Strategy.

As we develop our DSO Strategy, this value-driven approach will underpin our support for the use of flexibility and non-network solutions, so we can drive network optimisation and investment strategy.

Our whole system strategy seeks to drive value for all our customers, including those who are most vulnerable. It is therefore closely aligned with our Vulnerability Strategy. In RIIO-ED2 we will be implementing the Coalition of Partnerships (Annex 4B.2: Customer Service Strategy) which brings together a committee of organisations that together will develop:

- a shared understanding of vulnerability
- a method to gather personal data and how it should be shared
- services that Nexus partners will commit to delivering and funding.

We'll carry out a strategic DNO role in the communities we serve

The electrification of heat and transport will present big challenges for our networks in delivering the capacity needed to facilitate the associated and significant increase in demand for new and upgraded connections. This will require us to work with partners and across vectors to ensure a joint planning and development approach that will optimise between the need for network investment, innovative solutions and the provision of new services. During RIIO-ED2 we intend to act as a strategic DNO, helping to achieve a coordinated whole system approach to the decarbonisation of transport and heat at a local level.

EV chargepoint optioneering

Building on the success of Project Pace, which is forecast to realise connection savings of between £1.3m and £2.6m, we plan to introduce EV optioneering works for public EV charging infrastructure to all local authorities in our licence areas during RIIO- ED2. Our EV optioneering proposal has three strands:

1. **Use the data sets from our EV-Up project** – to prioritise our EV optioneering works in areas which have low average household income and low levels of off-street parking, and subsequently, where the market is not expected to deliver EV charging infrastructure.

2. **Work with local authorities** – to decide where EV optioneering for public EV charging infrastructure would be most beneficial, for example in supporting local communities or areas where regeneration is being planned. This local knowledge helps us avoid areas where the market is expected to deliver EV charging infrastructure.

3. **Apply our Project Pace optioneering methodology** – to complete feasibility studies for the appropriate and cost-effective siting of public EV charging infrastructure for local authorities, informed by the EV-Up data and development priorities of the local authority and wider community.

We plan to prioritise our works in areas where there is currently no market interest in installing EV charging infrastructure. Accessible public EV charging infrastructure should stimulate EV uptake and, subsequently, a market where commercial players can operate successfully in the future.

By working with local authorities or the relevant strategic bodies, we will help to enable universal access to public EV charging infrastructure – ultimately making sure that no community is left behind in the Net Zero transition. EV optioneering will be funded through an allowance and clawback mechanism, details of which can be found in Annex 5C.7: UIOLI / Clawback Allowances. This is also related to our customer value proposition (CVP) outlined in Annex 5C.2: BPI Stage 2 – Customer Value Propositions (CVPs).

DNO of Last Resort

A new distribution licence condition was put in place at the beginning of 2021 to reflect the EU's Clean Energy Package that allows DNOs to own and operate EV charging infrastructure as the 'provider of last resort', following a failed market tendering exercise. We support this new licence provision as we believe that this is fundamental to ensure that no communities are left behind in the roll-out of public EV charging infrastructure as we transition to a decarbonised transport system. We stand ready to work with Ofgem now in developing the necessary policy needed to support this licence condition, including a regulatory mechanism to ensure that where the DNO 'provider of last resort' provisions are required, DNOs are appropriately funded for taking on the role of provider and owner of public EV charging infrastructure.

Strategic Optimisers

We plan to set up a team of 'Strategic Optimisers' who will use their extensive network knowledge to support local authorities and other stakeholders across our two licence areas. They will provide crucial advice upfront and help develop plans for decarbonising heat. This includes Local Heat and Energy Efficiency Strategies (LHEES) in Scotland and Local Area Energy Plans elsewhere.

By involving our Strategic Optimisers at the early stages of local authorities' heat plans, we can allow for adequate consideration of the electricity network. This will ultimately speed up delivery and reduce connection and reinforcement costs.

This early specialist involvement could have major impacts. For example, for a new building development we can help to determine whether individual heat pumps are suitable, or if a communal 11kV connected heat pump and associated heat network works better – with a control solution optimising network capacity and delivering cost benefits

We are also proposing to carry out additional Strategic Optimiser work in the Mid Wales area in RIIO-ED2.

In-depth detail on these proposals can be found in Annex 4A.27: Strategic DNO.

3. We will embed Whole System thinking at the core of every investment we make, using our partnerships to identify and deliver optimum solutions for consumers

Throughout RIIO-ED2, we will continue to engage in new projects to create solutions that take the broadest interpretation of whole system, and capitalise on as many opportunities as we reasonably can to deliver value for our customers. This will make sure that we take a broad approach to collaboration and cross-sector working, and that we build on the depth and ambition of our whole system approaches.

The chart below plots some of our partnership projects against the depth and scope of their whole system approach. Our intention during RIIO-ED2 is to push towards wider collaborative partnerships with increasing levels of integration and value creation.

4. We will use our innovation programme to push the boundaries of Whole Systems thinking

Our whole system approach is embedded throughout our RIIO-ED2 plan to enable optimal solutions at the best value. We will push our learnings from whole system projects in RIIO-ED1 into our innovative solution design and implementation, delivering real change and progress in achieving Net Zero ambitions.

The graph belowplots some of our innovation projects against the key dynamics, "Depth" and "Scope" of whole system approach. It is our ambition during ED2 to continue to challenge ourselves to seek new opportunities to exceed whole electricity system requirements. In addition, where it can be proven to deliver optimum wider whole system outputs, we will seek to increase the breadth and scope of our approach. We will deliver this through increased collaboration and joint working across energy networks, energy vectors (incl. transport and heating) and wider societal systems (including health and reduced vulnerability).

As an example, we will take forward learnings from Project Fusion, which creates a competitive market to trade local DER flexibility, in the delivery of our DSO Strategy (Annex 4A.3). This will improve coordination and planning in support of more efficient whole energy system network interventions.

Other initiatives such as the Distributed Restart project, which is exploring how DER can be used to restore power in the event of a total or partial shutdown of the NETS, will deliver greater whole system security and reliability of supplies, further reducing the risk of unnecessary investments and costs for our customers.
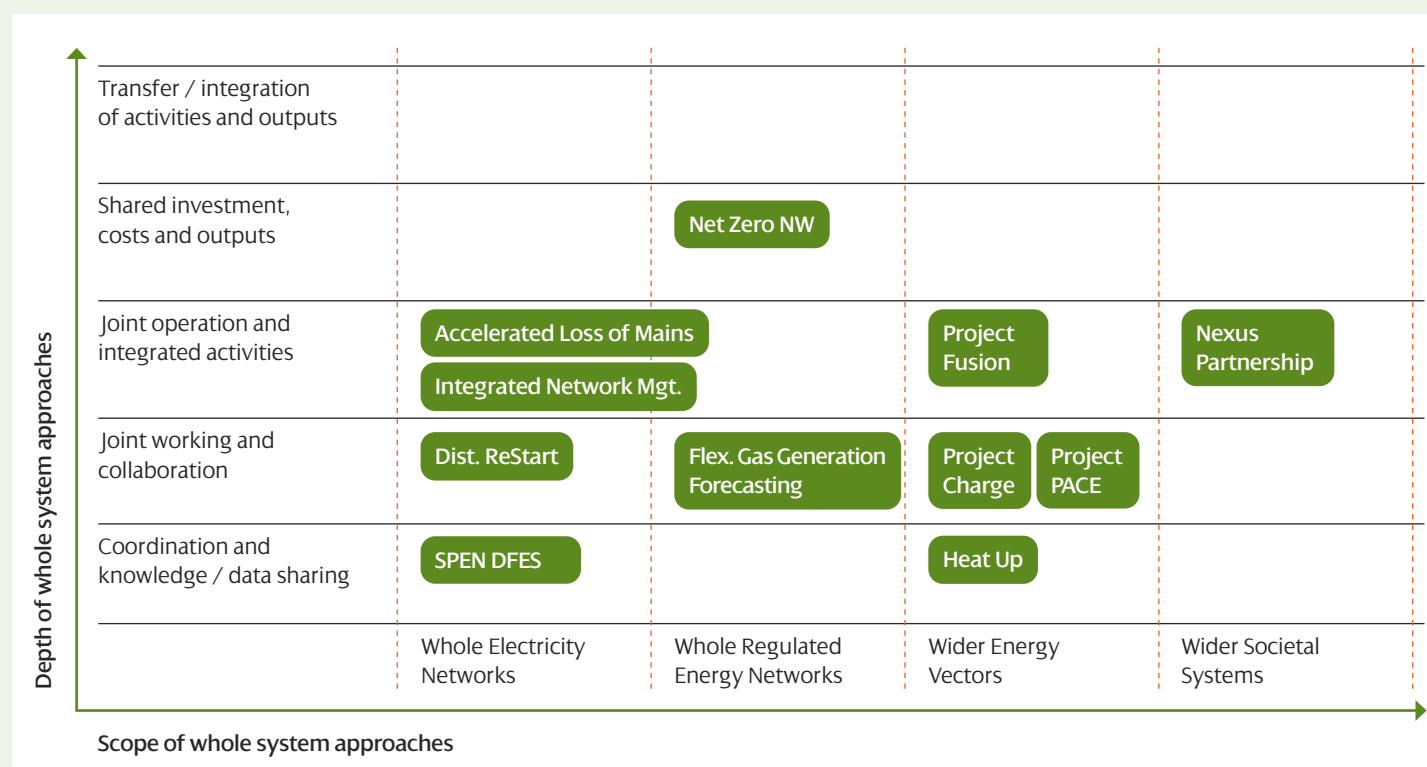
4A.2 Ensure a Safe and Reliable Electricity Supply

Our customers are increasingly dependent on electricity as they transition to Net Zero. We will manage the health, reliability, and safety of our network by continuing to lead the way in asset management in RIIO-ED2.

Our RIIO-ED2 foundations

Over the course of RIIO-ED1 we have firmly established ourselves as leaders in asset management. We have delivered on our asset health outputs across our full asset base, and Ofgem has recognised and commended our approach to asset management and the quality of our processes. We have delivered network safety programmes to improve electrical safety for our customers in high-rise and multi-occupancy buildings, and reduced risks in our rural communities by improving the ground clearance of our overhead lines.

Our customers are benefitting from our investment in long-term network safety, risk, and resilience. We have a strong position on which to build our ambitious plans for a safe, reliable and more environmentally friendly network.

Our RIIO- ED1 highlights:

We developed advanced machine learning to estimate the specification of missing cable assets and predict network behaviour.

We trialled the use of LIDAR mounted on the underside of a plane.

We are modernising poor-condition RLMs where they are made aware to us – reducing the risk to over 80,000 customers to date.

We have resolved over 106,000 overhead line safety issues.

RIIO-ED2 changes

Our customers already benefit from the safety, reliability, and resilience of our network assets and operations. As we add additional capacity and begin to use our assets in different ways to facilitate the Net Zero transition, we must also maintain the excellent performance that our customers expect.

Customers are becoming increasingly reliant on their electricity supply and we must therefore recognise the increasing criticality of our network assets and use this to prioritise and optimise our investments.

The magnitude and frequency of impacts from climate factors such as flooding, storms, and vegetation growth are likely to increase as the climate changes. Our network will require additional resilience through targeted investment to maintain the safe and reliable supply our customers expect.

The growth in network demand through the electrification of heat and transport, coupled with growth in renewable generation, will increase the utilisation of network assets and therefore increase their rate of deterioration. This will have a knock-on effect on network reliability unless we intervene.

Advances in network control add additional complexity to network operation and will increase the utilisation of our assets. This places greater importance on managing our underlying asset risk.

In this section, you will read about:

- How we are **keeping electricity supplies reliable and secure**, by continuing to develop our asset management approach through international best practice and delivery of industry leading programmes.

- Our **long-term risk objectives and strategy**, including how we will continue to optimise network asset risk for our customers over RIIO-ED2 and our network risk forecasts with and without planned interventions.

- How we are delivering ongoing **performance and reliability improvements for our customers**.

- How we are continuing to improve **network resilience**, **safety, and sustainability** by deploying new technologies and innovation. This includes details on critical security and safety programmes to reduce risk to the public. We will also explain how we will ensure the ongoing environmental sustainability of our network and resilience to climate threats.

You can find more detail in:

Annex 4A.1 – our Future System Strategy

Annex 4A.4 – our Network Asset Risk Strategy

Annex 4A.5 – our Network Performance Strategy

Annex 4A.7 – our Climate Resilience Strategy

Annex 4A.8 – our Losses Strategy

Annex 4A.10 – 4A.19 – our asset strategies in more detail

Annex 5A.5 – our robust unit cost data that underpins our plans

Annex 4A.23 – our evidence that supports our proposals (EJPs, CBAs and BPDTs)

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with engineering experts through specific bilaterals, workshops and surveys as well as also asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Reduce both the duration and number of interruptions to our customers.

Stakeholders praised our work on black start and the stated focus on short as well as long interruptions. Customers ranked 'Speed of restoring power after a power cut' as their top priority, closely followed by 'Network resilience, not having a power cut'.

Continue to proactively invest in resolving potential safety risks from electrical equipment, even if this could lead to a bill increase.

72% of customers agree we should continue to proactively invest to resolve potential safety risks – this is perceived as an 'inbuilt' responsibility that we have. The majority of customers are happy to accept a bill increase if this is necessary to keep the network safe.

Deploy sophisticated monitoring and control of the electricity network which will be essential as we move towards a Net Zero energy system.

In general, stakeholders believe that advance/online condition monitoring should be considered mainly for high risk and high-value assets but also those critical to achieving Net-Zero. Stakeholders commented that regular monitoring of assets on the network would help optimise not only maintenance planning and investment planning, but also the quality of service and efficiency.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our reliability plans will enable us to ensure the reliability and security of supply, actively monitor the network, reduce the duration and number of interruptions to supply and ensure the management of the environmental impact on the network.

We have 10 detailed commitments in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

NZ4 We will significantly improve the safety of our network and business operations for our staff, customers, and communities through an ambitious programme of modernisation for assets in poor condition and increasing site security.

NZ5 We will Invest in our network to increase its reliability such that customers will be 15% less likely to experience an interruption and the average duration reduced by 10%.

NZ6 We will increase the resilience of our network to withstand extreme weather events such as storms and floods.

Percentage of customers who support the commitments*	*Household*	*Commercial*
	83.10%	**84.00**%

Percentage of customers who are willing to pay, at least the RIIO-ED2 cost, for commitments in this topic area.	**81.60**%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

Managing our assets;
keeping electricity supplies reliable & secure

Our customers are increasingly dependent on electricity as they decarbonise. We will manage the health, reliability, and safety of our network for them by continuing to lead the way in asset management in RIIO-ED2.

Why asset management is important in RIIO-ED2:

Our customers depend on us
Our customers are increasingly dependent on a reliable electricity supply as they increasingly use electricity for transport and heating.

We are pushing the network harder
The electrification of heat and transport will increase network power flows. Network assets will be operating at a higher level of utilisation, increasing the deterioration ('wear and tear' rate) of assets compared to RIIO-ED1.

We are managing an ageing and deteriorating asset base
Nearly 80% of our assets have been in service for over 30 years and are already partly deteriorated. Our plans will reduce the rate of deterioration in RIIO-ED2 compared to RIIO-ED1. Overall, the level of asset risk will increase slightly as we manage a controlled deterioration of our underlying asset base, and optimise intervention on our poorest condition assets.

To accommodate Net Zero we must continue to manage our network's safety, reliability, and environmental impact. We will do this by delivering three main activities in RIIO-ED2:

1. Manage the overall risk (health and criticality) of our network. These activities deliver a safer, more reliable network with lower environmental impact. Pages 68 – 70 sets out how we will do this.

2. Increase the performance & reliability of our network by reducing the frequency and duration of power interruptions. Page 71 sets out how we will do this.

3. Manage the safety and resilience of our network to a range of external factors. Pages 72 – 77 sets out how we will do this.

Our leadership in asset stewardship

Over the course of RIIO-ED1 we have firmly established ourselves as leaders in asset management. This is exemplified by our international position within global forums and technical developments, and our ongoing commitment to improving public safety.

International asset management engagement

We are engaged in a wide range of international working groups including the International Electrotechnical Commission (IEC), the International Council on Large Electric Systems (CIGRE), and the Institute of Electrical and Electronics Engineers (IEEE). We also benefit from engagement within Iberdrola global practice groups, involving networks operating across Spain, USA, and Brazil. These engagements cover a wide range of network asset management topics, ranging from procurement and condition monitoring standards to post-mortem and reliability analyses.

This engagement gives us access to the latest global technical developments and the ability to seek international collaboration when tackling our own network challenges. It also means our contributions to network design, asset management, and innovation are reviewed by international peers and academics.

In RIIO-ED2 we will continue to engage internationally, providing an excellent opportunity to make continuous improvements to our core processes.

Our commitments – leaders in asset management

As a steward of critical national infrastructure, we will maintain our ISO55001 accreditation and ensure all our asset managers are certified with the Institute of Asset Management. We will continue our strategic partnership with the IET and our leading contribution to the IEEE, CIGRE and CIRED.

Our commitment to public safety

Over RIIO-ED1 we have developed a close working relationship with the Health and Safety Executive. We regularly meet to review the actions we take to improve public safety. These include modernising rising and lateral mains, resolving low ground clearance issues with overhead lines, and mitigating the risks associated with looped services, end-of-life cut outs, and fused neutrals. These risks are increasing as our communities decarbonise.

We are committed to continuing investment in these areas to reduce the public safety risk in the communities we serve.

Optimising the management of our network asset risk

Our network is made up of cables, overhead lines, electrical plant (such as substation equipment and ancillary systems), and civil infrastructure. Collectively, we refer to these as our assets.

The safety and reliability of our customers' supply, and the environmental impact of the network, depends on the condition ('health') and criticality of these assets. We regularly inspect and maintain our network to collect up-to-date information about our asset condition and to reduce deterioration.

The challenge for RIIO-ED2 is that our assets continue to age and deteriorate as the pressures on them increase with Net Zero, and as our customers are becoming more dependent on them.

This section sets out how we will manage the condition and risk of our assets in RIIO-ED2, and manage the safety, reliability, and environmental impact of our customers' supply. We explain how we do this by asset category:

1. Network Asset Risk Metric (NARM) assets

2. Non-NARM assets

3. 132kV network assets.
132kV network assets comprise NARM and non-NARM assets; we are presenting these separately given their high value and importance.

Our long-term asset risk objectives and strategy

Our asset investment practices are underpinned by whole lifecycle asset management and Condition-Based Risk Management (CBRM). This allows us to operate an efficient regime to maintain the safety, resilience, and integrity of the system.

We engaged with our stakeholders to develop our long-term risk strategy. Managing asset risk is complex and our stakeholders told us to focus on individual assets rather than absolute targets. This feedback led us to refine our long-term risk strategy and approach to carry out optimised interventions on our poorest condition assets, prioritised by criticality, to manage the overall level of network risk, detailed in Annex 4A.4: Network Asset Risk Strategy.

This means we will only intervene on poor condition assets in need of modernisation (regardless of age) and seek life extension through refurbishment or smart life extension where it is financially efficient, tested by cost benefit analysis (CBA). We will prioritise interventions based on our highest risk assets, and progress activities which most effectively manage long-term network risk. We will make interventions at the optimal point in time to provide the greatest risk benefit on an asset by asset basis.

This approach ensures we will intervene on assets at the right time and in the right way to reduce risk. Due to the combined effects of the age and condition of our network, we expect overall risk to increase as our lower risk assets deteriorate. We elaborate on this in the following section.

Our condition-led programme means some of our assets will be older than ever before in RIIO-ED2, whereas some will require intervention earlier than if we'd used an age-based approach. Overall, our stakeholder endorsed approach supports the gradual migration of network risk to the right level. This is justified by CBA and enhanced by optimal intervention timing to efficiently invest in managing risk for our current and future customers.

For more information see Annex 4A.4: Network Asset Risk Strategy.

Whole lifecycle asset management
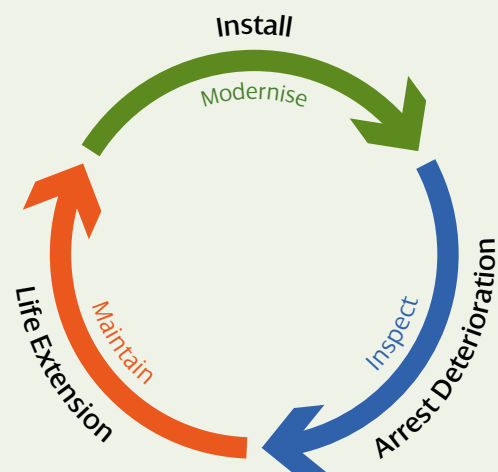
Network Asset Risk Metric (NARM) Assets

Over the course of RIIO-ED1, we have embedded the industry Common Network Asset Indices Methodology (CNAIM V2.1). This lets us establish asset health and criticality consistently across our networks by using common measures for our assets. This methodology, which allows us to calculate the **monetised risk** for each asset, is applied to a subset of our highest value and most critical assets, collectively known as NARM assets. In 2019, we were recognised by Ofgem for the consistency and quality of our asset data, and for our leading implementation of CNAIM.

We are on-track to meet our RIIO-ED1 risk targets in both SPD and SPM. Our RIIO-ED1 risk plan is front-ended with high-risk and high-volume programmes targeted early in the period. We have delivered a strong risk performance to date by delivering 87% and 74% of our targets in SPD and SPM respectively by the 31st March 2020 (62.5% of the period). We have focused on our overhead network, where our level of risk is above the national average, due to a high number of poor condition assets. We are continuing our focus on poor condition assets in RIIO-ED2 and prioritising those with highest consequence of failure.

To support our RIIO-ED2 planning and decision making, we are further improving our CBRM software platform that operates the CNAIM V2.1 methodology, to collect even more asset condition data and further integrate it with our corporate asset register systems.

In addition, we have deployed an optimisation engine, which uses cloud-computing to iteratively evaluate the costs and benefits of different interventions across thousands of assets to identify the right intervention, for the right asset, at the right time. This helps us intervene in the most financially efficient way, which helps us minimise impact on customer bills.

Over RIIO-ED2, we will invest £343.7m in our NARM assets. This will reduce the rate of NARM deterioration on our networks from around 2.7% per year in RIIO-ED1, to around 1.5% per year in RIIO-ED2. Overall, the level of monetised risk on our networks will increase by 7.6%.

This is because as we replace our poorest condition assets, we are managing a controlled deterioration of the Health Index (HI, scale 1-5) of our underlying asset base, this does not affect the criticality (C, scale 1-4) of our asset base i.e. HI2|C2 assets becoming HI3|C2 or HI4|C2.

The chart below shows how monetised risk will change with, and without, our planned investment.
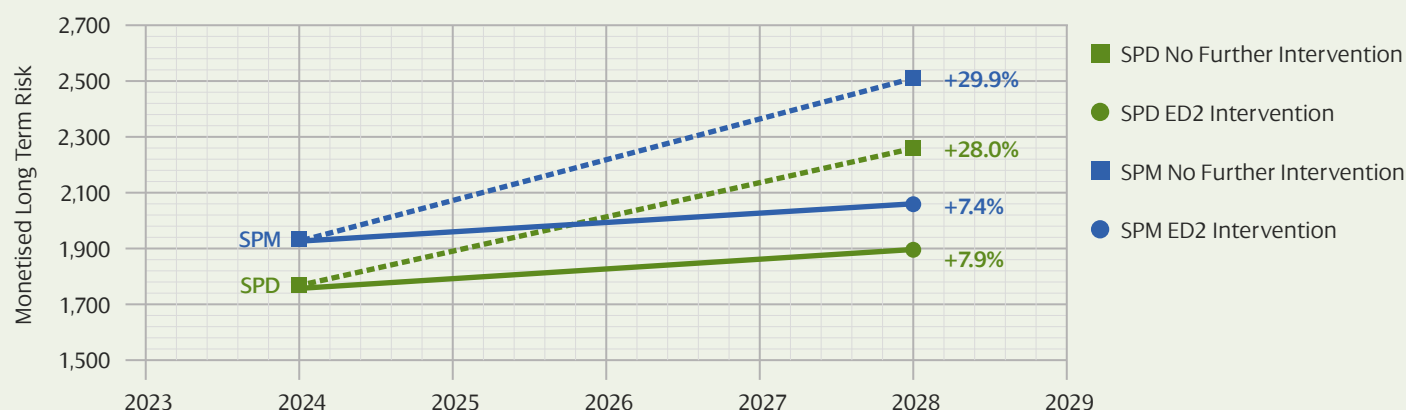
Our proactive and optimised asset intervention programme will significantly reduce the level of deterioration compared to a heuristic approach.

Our NARMs interventions cover a wide range of network assets, including the modernisation of:

- over 40,000 wood poles which support LV, HV and EHV overhead lines,
- over 100 EHV transformers, and nearly 500 HV transformers (including those buried directly underground),
- 58km of EHV cable, including the last remaining gas pressurised cable on our network,
- over 2,750 HV switchgear devices at our primary and secondary substations, and
- refurbishment of 400 switchgear devices, including over 100 EHV circuit breakers.

We will also replace over 2,000 of our poorest condition link boxes, and modernise nearly 2,000 LV pillars. This will help reduce the risk associated with our LV switchgear assets by 24%.

We have developed our NARMs asset programmes by engaging with a range of expert stakeholders and asset managers across other industries, nationally and internationally, to inform our objectives and ambition. This included feedback to ensure asset criticality is used to prioritise our intervention plans and that CBAs underpin all our programmes of work, regardless of value. The approach we have adopted to prioritise highest risk assets for optimal intervention was driven by and endorsed by this feedback.

All our NARMs asset programmes are linked to cost benefit analysis, which compares the monetised risk benefit to the costs of a range of interventions. This ensures the solutions we adopt are in the long-term interests of our current and future customers.

This is part of our longer-term strategy for overall network risk to remain relatively stable in RIIO-ED3.

For more information on our asset health and criticality profiles, and our forecast risk with and without intervention, refer to Annex 4A.4: Network Asset Risk Strategy.

NARMS long-term risk forecast (CNAIM V2.1)

Legend:
- SPD No Further Intervention
- SPD ED2 Intervention
- SPM No Further Intervention
- SPM ED2 Intervention

Chart annotations: SPM +29.9%, SPD +28.0%, +7.4%, +7.9%. Y-axis: Monetised Long Term Risk (1,500–2,700). X-axis: 2023–2029.

Welcome to our plan

Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

Assuring our RIIO-ED2 Business Plan

Summary

HV underground transformers

We have 82 HV/LV underground transformers on our SPD network. These were mostly installed between the late 1950s and 1970s.

Because they are buried, it has not been practical to regularly inspect or maintain them. We have recently determined that they are in a severely deteriorated condition due to their prolonged contact with soil and moisture. This means they are at end-of-life and need to be replaced.

As the transformers are located in busy public and residential areas, they pose a high risk to customers if we do not intervene – there is a public safety risk, a large number of customers will lose supply when they fail, and, as they are oil filled, corrosion and leaks also carry an environmental impact.

In RIIO-ED2, we commit to investing £4.6m to replacing all of these units, 79 as part of our non-load activity and 3 as part of load related upgrades. This is £3.4m more than it would cost to replace standard ground mounted transformers, as we need to establish a new substation site for each (it's not possible to make a like-for-like swap).

Non-NARMs assets

We operate and maintain important assets which are not captured by CNAIM. We refer to these as non-NARM assets. These include ancillary systems such as batteries, pilot wires, and protection systems which are critical to network reliability and safety. For these asset categories, investment is driven by a range of factors, including:

- Asset failure and fault rates
- Remaining life, analysis of age, condition, and survival analysis
- Obsolescence, type issues, and defect data.

Non-NARM assets include our low voltage (LV) and high voltage (HV) underground cable assets. We typically have reduced visibility of the condition of these assets due to their location and the resulting difficulty in inspection and monitoring. In many cases these cables have been in service since the 1960s, and comprise different conductor types, insulation materials, and cable manufacturers. We will prioritise interventions based on historical fault rates, known type issues, and the likelihood of future failures using data analytics.

We will target cable interventions using the outputs of our CALISTA innovation project, which is developing models to predict remaining life through known cable parameters. Our approach ensures interventions are on our poorest condition sections of cable and helps maintain the integrity of the cable system.

We plan to invest £194.1m to refurbish and modernise our non-NARM assets in RIIO-ED2. This will further enhance the resilience and integrity of the network and maintain compliance with our engineering policies. This investment will also help us maintain network functionality as our customers transition to Net Zero.

We have produced Engineering Justification Papers (EJPs), with cost benefit analysis (CBA) where required, to support our interventions for these asset classes. These set out the background, needs case and analysis behind our planned interventions.

For more information see Annex 4A.23: EJP and CBA Index.

Investing in our 132kV network

Our 132kV network supplies 1.5 million customers and connects over 1GW of generation. Our 132kV modernisation programme will maintain the safe, resilient, and reliable operation of the network through targeted refurbishment and replacement of poor condition assets.

Our RIIO-ED2 132kV plan is built on an asset-by-asset assessment, using engineering-science, condition reports, and detailed site surveys to fine-tune interventions, promoting refurbishment of assets and support systems and innovative alternatives wherever practicable.

We reviewed a range of options when assessing the 132kV network, including:

- targeted asset refurbishment
- targeted asset replacement, only replacing assets that require attention
- complete asset replacement with full site or circuit rebuilds.

We have adopted a combination of these options at specific sites and circuits to maximise the value to current and future customers. In total, we will invest £73.8m to address 132kV network assets with the highest risk and greatest probabilities of failure. We will prioritise these interventions by criticality of failure, and will:

- replace 10 transformers and refurbish three transformers
- replace 31 circuit breakers and associated non-active plant items
- replace around 90km of overhead line, with targeted ancillary equipment refurbishment
- replace 19km of fluid filled cables.

Our plans are built on asset condition and criticality drivers, complemented by rigorous cost benefit analyses.

Details of our 132kV asset intervention plan can be found in Annex 4A.14: 132kV Plant and Circuits. Our monetised risk forecasts for 132kV NARM assets (with and without intervention) are presented in Annex 4A.4: Network Asset Risk Strategy.

We use a range of innovative solutions to complement traditional intervention, including new oil regeneration technology for transformers. We are also reviewing opportunities for whole system solutions, including working with National Grid Electricity Transmission on key overhead line routes.

Improving the reliability and performance of our network for customers

We invest in the performance of our network to give our customers a reliable supply.

We measure reliability by the number of customers who experience a supply interruption, and the average duration of their interruption.

We have made step change improvements in these two metrics over the course of RIIO-ED1. On average, customers on our network now experience an interruption once every two and a half years, lasting an average duration of just 34 minutes.

In RIIO-ED2, we are targeting a further 15% reduction in the number of customers who experience an interruption, and a 10% reduction in the average duration of interruptions.

We will deliver this by reducing the likelihood of network faults through asset investments, and mitigating the impact of network faults through improved network design and wider use of automatic switching. Where supplies are lost due to network faults, we will restore supplies quickly and safely, with faster responses enabled by better data and network visibility.

Our commitments – network performance and reliability

We will continue to optimise the level of network risk and improve reliability, ensuring that on average, customers will be 15% less likely to experience an interruption, and the average duration should reduce by 10%.

We will improve reliability for over 2,400 of our 'Worst Served Customers' by 25% through delivery of 45 dedicated network performance schemes

Reducing the likelihood and impact of network faults

In RIIO-ED2, we will invest to decrease the number of power cuts experienced by our customers by reducing:

1. **Avoidable faults on the network.** We will invest in the resilience of our network through targeted asset modernisation and additional monitoring, for example undertaking pre-fault analysis on the LV network. We will modernise the parts of our network vulnerable to severe weather to the highest national storm resilient standard (ETR 132), and continue our regime of proactive vegetation clearace and maintainance activities to make sure assets operate reliably.

2. **The number of customers affected by faults on the network.** We will install 4,500 network controllable points, and use our ENZ platform to manage the network (page 49), to allow us to rapidly reconfigure the network during fault events. We will strategically target these interventions on circuits that will realise the greatest benefit.

Restoring supplies quickly and safely

Some network faults are inevitable. Our customers have told us that when this happens, their priority is for us to restore their supplies quickly and safely. Throughout RIIO-ED2 we will continue to reduce the average time spent off supply for our customers by:

- Using post-fault flexibility services to support supply to customers before the network is repaired
- Digitalising the tools available to our operational staff, such as advanced LV network fault location technology
- Rolling-out our SINE Post Innovation Project (NIA_SPEN0012) on our HV network, to give us greater visibility of the location of HV faults
- Rolling-out intelligent automatic network reconfiguration tools such as Automatic Power Restoration Schemes (APRS) on our network management platforms, to allow the rapid reconfiguration of our network.

Where interruptions lead to prolonged outages, we will support our customers, especially the most vulnerable and those on our Priority Service Register, by connecting local generation and providing essential welfare services.

See Annex 4A.5: Network Performance Strategy for more information.

Improving the service for our Worst Served Customers

Worst served customers are defined by Ofgem as customers who experience 12 HV interruptions over three years, with a minimum of two interruptions per year.

Our Worst Served Customers programme targets network performance improvements for those customers who are poorly served by their existing network connection. These customers are typically connected to sections of network where it is uneconomical to make significant network resilience improvements due to low customer numbers.

Across our network, we forecast to have around 6,000 of these customers at the start of RIIO-ED2. The exact number of customers who meet this criteria changes year-on-year as the location and number of faults change.

We will seek to improve the levels of supply for around 40% of our worst served customers in each licence area over the course of RIIO-ED2, through delivery of 45 worst served customer schemes. We believe these customers are deserving of improved levels of supply, even where conventional intervention may not be economical.

We plan to invest £3.3m for these customers. This is an increase on what we have been able to deliver in RIIO-ED1 due to a change in the regulatory definition.

Guaranteed standards of supply

Guaranteed Standards of Performance (GSOPs) set the minimum level of service customers can expect from us. They cover a range of activities, including supply interruptions.

We invested significantly in RIIO-ED1 to improve the resiliency of our network, and this investment will continue in RIIO-ED2. However, there may still be rare occasions where our performance drops below the minimum expected level for some customers. We will compensate customer under these circumstances in line with Ofgem mandated payment levels. In the vast majority of cases, this compensation will be automatic and not require customers to contact us.

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Network Resilience

In this section, we set out how we will keep our network safe and resilient in RIIO-ED2, manage the environmental impact of our network assets, and increase asset resilience to climate change.

In RIIO-ED2 we will manage external threats to network reliability, the environmental impact of our network, and the safety risk it presents to customers and our staff. This will ensure the ongoing integrity, resilience, and safety of the network for our customers.

You can find more detail in:

Annex 4A.1 – *our Future System Strategy provides an overall view of our Engineering plan.*

Annex 4A.16 – *our Operational IT & Telecoms Strategy, summarises our approach to managing our telecoms and smart grid infrastructure as a DSO.*

Annex 4A.20 – *our Network Operating Costs Strategy, providing information on how our operating costs have been built up.*

Annex 4A.19 – *our Rising and Lateral Mains Strategy, providing an overview of our programme to manage these assets in RIIO-ED2.*

Annex 4A.18 – *our Legal and Safety Strategy, summarising our activities reportable as Legal & Safety (CV14) under Ofgem guidance.*

Annex 4A.17 – *our Electricity System Restoration (Black Start) Strategy, providing an overview of our investment to ensure the network can recover from a national outage.*

Annex 4A.15 – *our Civils and Flooding Strategy, setting out how we will maintain the resilience of our civil assets and protect the network from flooding.*

Annex 4A.13 – *our OHL and Clearances Strategy, details our overhead line modernisation strategy and how we are maintaining ESQCR compliance.*

Annex 4A.7 – *our Climate Resilience Strategy, setting out climate risks and how we can adapt to these threats as we support the Net Zero transition.*

Annex 4A.8 – *our Losses Strategy, setting out our actions to manage the level of technical & non-technical losses as network utilisation increases.*

Annex 4A.23 – *our evidence that supports our proposals (EJPs, CBAs and BPDTs).*

Annex 5A.5 – *our robust unit cost data that underpins our plans.*

Network resilience

Network resilience is increasingly important to our customers as they become more reliant on a safe and secure supply of electricity. The previous sections outlined how we will improve network risk and reliability of supply, however we must also consider the changing environment surrounding our networks. We must invest to maintain maintain legislative, regulatory and policy compliance and in the resilience of the network to external threats; from climate change to third party interference.

There are multiple types of intervention we will deliver to maintain and increase our network resilience. Where possible, we will coordinate these interventions with other planned outages and interventions, to minimise cost and disruption to customers.

Investment in flood resilience, operational IT and telecoms, fire protection, earthing upgrades, oil pollution mitigation, and persistent organic pollutant asset changes are all materially higher than in RIIO-ED1 in response to the changing environments we face in RIIO-ED2.

We have worked with our supply chain, workforce planners and different disciplines of our organisation to ensure that these increasing volumes are deliverable in RIIO-ED2 and will provide lasting benefits for customers. For more information on how we have assured the feasibility of delivering our proposed volume of activity, see Annex 6.1: Delivering Our Plan, and Annex 4C.4: Workforce Resilience Strategy.

Our commitments – keeping our network safe and resilient

We will ensure that in an exceptional event, no customer should be affected for more than 36 hours.

We will continue to improve the flood resilience of our network by working with our regional environment agencies, and continue to target 100% compliance as flood maps and assessments evolve during RIIO-ED2.

Building on our extensive RIIO-ED1 work, we will take a proactive approach to overhead line issues by adopting a risk based, digitalised inspection regime with the use of LiDAR (flying one third of our network per annum). In addition to this we will rectify all reported and confirmed overhead line clearance issues within 12 months of discovery.

Operational information technology (IT) and the telecommunications network

Operational IT and telecoms consists of four components:

1. The telecommunications network, which communicates all data and control signals

2. Supervisory Control and Data Acquisition (SCADA) systems, which are the network monitoring and control system architectures

3. Smart systems and central data management, such as the full network connectivity and loading model developed through our Network Constraint Early Warning Systems (NCEWS) and Network Analysis and View (NAVI) innovation project

4. Network automation and monitoring.

These integrated systems and infrastructure are vital for DSO baseline requirements and accommodating Net Zero decarbonisation: increased network monitoring; collating and sharing information with third parties; smart network technologies to manage a more dynamic and interactive energy system – these all depend on safe, resilient, and cyber secure operational IT and telecoms.

Our existing systems were designed for historical passive networks. While they have evolved in RIIO-ED1 to accommodate increasing levels of generation, the magnitude of the changes needed to achieve Net Zero goals in RIIO-ED2 and beyond means these systems need to undergo a more dramatic revolution.

Given this, we will materially increase our investment compared to RIIO-ED1 to £273.4m, to significantly expand these capabilities. This will enable:

• The deployment of LV monitoring at 14,102 substations. These help us more efficiently operate our network for our customers, by better knowing where and when to intervene, and enhance competition, by supporting our more targeted and effective use of flexibility services.

LV Monitors

	Baseline scenario	High scenario
SPD	7.7k monitors £15.5m	16.5k monitors £32.6m
SPM	6.4k monitors £12.7m	12.8k monitors £25.3m
SPEN	14.1k monitors £28.2m	29.4k monitors £57.9m

• The analysis and sharing of data across the organisation and with third parties.

• The expansion of our world leading active fault level management, which will enable renewable generation to connect quicker and at lower cost.

• The continued use of RIIO-ED1 innovations such as NCEWS, which uses advanced machine learning to estimate the specification of missing cable assets and predict network behaviour. This has reduced design time by up to two thirds and won the prestigious IET E&T Innovation of the Year prize in November 2019.

For more information see Annex 4A.16: Operational IT and Telecoms.

Cyber OT Resilience

We must make sure that our Operational IT and telecoms is cyber secure and meets industry recommendations for critical network infrastructure resilience.

Our Cyber Resilience OT Plan demonstrates the business alignment, needs case compared to the NSCS Cyber Assessment Framework and costs of the proportionate cyber response required to achieve our commitments for RIIO-ED2.

Our plan is threat and risk informed, subject to both regular and event driven review, and owned at board level with responsibilities clear throughout our organisation.

Delivery of our plan will be through incremental improvements in OT cyber security across our infrastructure aligned to international standards such as IEC62443.

See our Cyber Resilience OT Plan for more information.

Civils condition

Civils condition investment is about making sure we keep our civil assets and buildings in good condition, in turn preserving the condition of our electrical assets. This helps maintain safe and secure sites, which protects the public and our staff. It also contributes to the reliability and cost efficiency of our customers' supply (regulating temperature and humidity helps maintain the health of network assets – this is more achievable in good condition buildings).

In RIIO-ED2, we plan to invest £36.7m to maintain or replace our poorest-condition civil assets. This includes delivering long-term cost efficiency for our customers by improving a number of large legacy civil assets and buildings with high maintenance and management costs. Where possible, we will coordinate interventions with plant refurbishment and replacement programmes to minimise cost.

For more information see Annex 4A.15: Civils and Flooding.

Flood resilience

Flood resilience is about improving our network's resilience to flooding. This makes the network safer, and gives customers a more reliable and cost effective supply. Flood risk is not static, and the flood risk maps we work to are regularly updated by the regional environmental agencies.

In RIIO-ED2, we will invest £9.6m to target full compliance with industry requirements for the protection of our grid and primary substations. We will do this by improving flood resilience at existing substations, and constructing any new substations to the required level of protection. In RIIO-ED1, we adopted a new type of flood barrier system which protected key individual items of plant, rather than the whole site. We will continue to use this method where it reduces costs for customers without impacting flood resilience.

We are materially increasing our investment in flood resilience compared to RIIO-ED1 for two reasons. We need to take account of the latest modelling and a change in the industry's flood resilience standards. And investment in RIIO-ED1 is low because we had already made significant investment in flood protection prior to RIIO-ED1.

For more information see Annex 4A.15: Civils and Flooding.

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Electricity System Restoration (Black Start)

Electricity System Restoration is the recovery phase from a total or widespread loss of power on the GB electricity network. Such an event is identified on the National Risk register, and would have a severe impact on our customers and the economy.

Our responsibility as a DNO is to build network resilience to this, as recommended by the UK government and electricity industry. Failure to do this would increase the risk of our customers being left without electricity for an extended period.

The primary way to provide this resilience is to make sure that all equipment the electricity system restoration depends upon is resilient to a five-day loss of power. We achieve this by installing backup power sources, such as generators and batteries, for our protection and telecoms equipment.

Our plan for RIIO-ED2 is to invest £6.5m to make the interventions needed to achieve full resilience for all core and critical substation locations by the end of RIIO-ED2. This is part of our wider strategy to achieve full network resilience by the end of RIIO-ED3. Any work will be aligned with other substation modernisation works wherever possible to reduce costs.

For more information see Annex 4A.17: Electricity System Restoration.

Fault repair

Fault repair is the 24-hour a day service of locating and repairing network faults, to quickly and safely restore customer supplies. The importance of this service will grow as our customers become increasingly dependent on a reliable electricity supply as they transition to Net Zero.

During RIIO-ED1, we have experienced an overall increase in fault rates, notably on our underground cable network. This has largely been driven by a combination of factors including a known joint type defect on our 33kV cable network and general asset age-condition related deterioration. In RIIO-ED2 we are planning a more proactive approach to underground cable investment, making optimum use of data to prioritise the interventions we make on circuits to provide the greatest benefits to customers in terms of performance and reliability. However, we are still forecasting an increase in the volume of faults on our network in RIIO-ED2, as it will be more economical for us to balance investment with fault repair given the scale of intervention required to prevent this increase.

To manage the customer impact of increasing fault rates, we will invest £270.7m in RIIO-ED2 in fault repair. This will include delivering improved fault restoration through new technologies. This investment also covers the cost of providing temporary generation to make sure customers, especially our most vulnerable, remain on supply while repairs are underway. As a result of this investment, and in spite of increasing fault rates, we are targeting a reduction in the frequency and duration of network interruptions that our customers experience RIIO-ED2.

For more information see Annex 4A.20: Network Operating Costs Strategy.

Inspection, repair, and maintenance

We inspect and maintain all our assets on a regular basis to:

1. Identify hazards or defects which could affect the safety, reliability, or environmental impact of our network.

2. Maintain the financial efficiency of the network through preventative maintenance to prolong asset life and avoid costly asset failures.

3. Comply with our legal requirements.

For RIIO-ED2 we will invest £114.4m to continue to deliver an inspection, repair, and maintenance programme. Compared to RIIO-ED1, we have introduced the following inspection changes:

1. **Inspection prioritisation.** We have reduced the frequency and scope of inspections for certain lower risk, higher reliability assets. We have done this where we can reduce customer bills without impacting the safety, reliability, or environmental impact of the network.

2. **Domestic asset inspections.** We are including a proactive inspection programme of our domestic cut out assets. We previously received information on the condition of these assets from meter readers who visited properties, but smart meters mean these visits will no longer happen.

3. **Oil sampling.** We have introduced additional enhanced oil sampling on our HV/LV transformer fleet, to improve our condition visibility on these assets, and align data collection with CNAIM.

4. **A close eye on transformers.** We will introduce real-time monitoring of transformers which are forecast to experience increases in utilisation. This monitoring means we can tailor specific strategies and solutions for timely and effective maintenance of our assets to prolong their life.

For more information see Annex 4A.20: Network Operating Costs Strategy.

Tree cutting

If trees and other vegetation get too close to our overhead lines they can become a source of faults – for example, branches touching our power lines will cause that line to disconnect from the rest of the network and result in a loss of supply for customers connected to that line. We therefore have an ongoing programme to:

1. Inspect vegetation clearances

2. Cut back vegetation on a three-year cycle to maintain a safe clearance distance.

In RIIO-ED2 we will invest £81.9m in these two activities. For inspection, in RIIO-ED1 we trialled the use of LiDAR mounted on the underside of a plane. LiDAR gives a three-dimensional representation of everything within a few metres of our overhead lines. From this we can identify vegetation clearance distances. This approach reduces inspection costs, targets our cutting, and resolves issues quicker and at lower cost than a site visit. Given the success of LiDAR, we will use it as business as usual with RIIO-ED2.

For more information see Annex 4A.20: Network Operating Costs Strategy.

Network safety

Ensuring the safe operation of the network is our most important and deeply held responsibility.

Over RIIO-ED1 we have been at the forefront of delivering key public safety programmes to manage and reduce risk associated with the electricity network. From ensuring our overhead network is at a safe clearance to ground, to modernising deteriorated low voltage networks within multi-storey buildings, we are keeping safety at the forefront of our activities for RIIO-ED2.

As our customers transition to Net Zero, the electricity network is being placed under greater pressure than ever before. We will keep our network safe by investing in smarter substation security measures, modernisation of rising & lateral mains, and maintaining our ongoing programme of resolving OHL clearances.

Our commitments – ensuring the safe operation of our network

We will improve fire safety at over 1,000 substations integrated in other buildings, through a prioritised, risk-based investment programme during RIIO-ED2.

We will deploy smarter security measures and access restrictions to 100% of our ground mounted substation sites over the course of RIIO-ED2, to reduce unauthorised access and improve traceability and management of our third-party contractors.

We will safeguard 70,000 residents of flats and tenements by proactively managing the risk associated with deterioration of Rising and Lateral LV Mains (regardless of ownership). We will do this through our risk-prioritised modernisation programme, which upgrades poor condition assets where they are identified.

We will improve public safety risk by replacing over 2,000 of our last remaining poorest condition underground link boxes, and modernising 2,000 low voltage pillars in publicly accessible areas during RIIO-ED2.

Legal and Safety (CV14)

In RIIO-ED2 we will invest £40.2m to deliver a range of activities to improve the safety of the network and the reliability of our customers' supply. Including site security (next column), we will deliver:

Fire protection – we will improve safety by completing fire risk assessments for **all** our substations, and by continuing to invest in reducing fire risk at our highest risk substations, including those integrated within third party buildings. Interventions include fire detection, and separation at our higher voltage substations to reduce the risk of damage if a fire does occur.

We have an obligation to our customers to continue to mitigate the fire risk to and from our substations. We are materially increasing our investment in fire protection compared to RIIO-ED1, following recent analysis and to align with latest industry standards.

Asbestos management – we will continue to deliver our asbestos management strategy, surveying our higher risk sites and containing or removing asbestos to ensure a safe working environment for our staff and contractors.

Earthing upgrades – we will continue to upgrade earthing at pole mounted substations, and at substations where needed to comply with the latest earthing standards.

We are materially increasing our investment in earthing upgrades compared to RIIO-ED1, mainly driven by the latest earthing standards. These standards require different earthing arrangements on some of our assets. We will look to coordinate earthing interventions with other interventions, to minimise cost and disruption for our customers.

Safety recreational sites – at recreational sites where there is increased risk of contact with overhead lines (such as fishing sites and caravan parks), we will increase public awareness of the potential safety hazard through the use of signage. We will relocate, insulate, or remove the overhead asset where needed.

Other network safety activities we will deliver in RIIO-ED2 are interventions to improve cables pits, replacing or installing fire blankets, and repairing or replacing assets due to metal theft incidents.

For more information see Annex 4A.18: Legal and Safety (CV14).

Site security

Site security centres on preventing unauthorised access to our substations, as it presents a safety risk to individuals. If those individuals steal or damage equipment, there can be cost, public safety, reliability, and environmental impacts.

In RIIO-ED1 we successfully trialled a smart lock system – a new system based on 'smart key' technology that can control access to substations for all personnel and contractors. This gave real-time visibility of who was accessing our substations. This had the secondary benefit of creating an audit trail for the time our contractors were spending to complete work.

Our RIIO-ED2 plan for site security is to install, maintain, and upgrade security assets to meet the appropriate standards based on the site risk rating. In total we are seeking to invest £15.4m to:

1. Refurbish or replace site security systems.

2. Install new security systems where no systems are currently installed but are recommended to comply with the Electricity Safety Quality and Continuity Regulations (ESQCR) and improve security.

3. Continue the roll-out of smart locks and the key management system to provide full network coverage in both licence areas.

For more information see Annex 4A.18: Legal and Safety (CV14).

Physical security refers to investment to enhance security at sites deemed to be Critical National Infrastructure (CNI) by the department for Business, Energy & Industrial Strategy (BEIS). We operate several sites with CNI status. During RIIO-ED1 we have maintained security at these sites as part of our wider allowances. We are not seeking any additional investment in RIIO-ED2 as our requirements have not changed. Our sites may be reclassified by BEIS during RIIO-ED2, which may trigger a physical security reopener.

Rising and lateral mains

Rising and lateral mains (RLMs) are the LV cables that supply customers in multi-occupancy buildings, either in multi-story (rising) or terraced (lateral) properties, including flats and tenement buildings.

RLMs are either located inside or attached to these properties, so their ongoing maintenance and modernisation is critical to the occupants' safety. Historical construction arrangements mean the ownership of these cables can be unclear, leading to concerns about their condition, deterioration, and level of risk. Many need urgent investment. The risks to customers from these assets increase as they continue to deteriorate, and as customer demand increases with Net Zero.

In recognition of this public safety risk, and with the support of the Health and Safety Executive, during RIIO-ED1 we are modernising poor-condition RLMs where they are made aware to us. This has reduced the risk to over 80,000 customers to date. We are one of the few DNOs to do this.

For RIIO-ED2 we will invest £61.1m and increase our leading role by pro-actively inspecting properties with RLMs that we have identified in accordance with our policy. We will do this regardless of RLM ownership, to support our ongoing and risk prioritised programme of modernisation for over 70,000 customers. This makes our customers safer and helps enable Net Zero.

For more information see Annex 4A.19: Rising and Lateral Mains Strategy.

Overhead line (OHL) clearances

We have an obligation to comply with proximity and ground clearance requirements for overhead line assets, as per the ESQCR. This safeguards our staff and the public by reducing the risk of contact with overhead lines.

At the start of RIIO-ED1, we identified a significant volume of ground clearance compliance issues on our network. To date in RIIO-ED1, we have resolved over 106,000 of these issues and are delivering our commitments to the Health and Safety Executive to clear our backlog and achieve compliance.

As assets deteriorate, land use changes and conductors sag, over time the number of issues will increase. The discovery rate of these issues is more prevalent in our SPM region compared to SPD because:

- The SPM LV OHL network (excluding services) is approximately twice as long and LV networks are more susceptible to ground clearance issues
- It has approximately three times the number of OHL LV services
- The LV network is around twice as likely to be within 5m of roads, where clearance requirements are more stringent.

We will invest £21.9m over RIIO-ED2 to maintain compliance with ESCQR legislation for safe OHL clearances, with another proportion of ground clearance issues resolved as part of our wider OHL modernisation programme. We will embed benefits from our LiDAR innovation project to identify and resolve non-compliances without costly inspections.

For more information see Annex 4A.13: OHL and ESQCR Strategy.

Network Sustainability:
the environmental impact of our network

We will invest £101.8m in RIIO-ED2 to reduce the environmental impact of our network.

Further details are contained within Annex 4C.3: Environmental Action Plan, Annex 4A.8: losses Strategy, and Annex 4A.7: Climate Resilience Strategy.

Persistent organic pollutant asset changes – we are materially increasing our investment in persistent organic pollutant asset changes compared to RIIO-ED1, due to new legislation which came into force in 2019. We will continue our programme to remove all oil filled assets with more than 50ppm polychlorinated biphenyl (PCB) by 2025. This programme is informed by the SP Energy Networks-led ENA statistical model that analyses all GB historical test data to determine probability of contamination. We forecast to replace over 10,000 pole mounted transformers during RIIO-ED2 as part of a £70.8m programme.

Due to the step-change in scale of activity in this area compared to RIIO-ED1, we have assessed our supply chain and are making provisions to scale up for delivery. We intend to utilise a similar approach and resourcing model that we applied to resolve the backlog of overhead clearances as part of a programme agreed with the Health & Safety Executive.

Volumes of PCB contaminated equipment remain uncertain across industry. New information continues to be collected to refine the volume, type and location of interventions but the uncertainty will remain until the programme is complete in 2025. Our proposal for a volume driver to manage this uncertainty is detailed in Annex 5B.1: Uncertainty Mechanisms.

Oil pollution mitigation – we will continue to bund 33kV & 132kV transformers that have no existing oil containment bund or oily water drainage system. We will prioritise high risk sites based on proximity to water courses and align intervention with wider asset modernisation programmes. We are increasing our investment in oil pollution mitigation compared to RIIO-ED1 and will keep costs efficient by using an innovative bunding solution for existing transformers.

Contaminated land clean-up – in combination with our oil pollution mitigation programme, we will clean up land contaminated by ageing and leaking plant.

Noise pollution – we will continue to act on noise complaints from our customers, using a range of interventions including plant repair or replacement, and noise barriers or enclosures.

Visual amenity – we will keep undergrounding our overhead network in designated Areas of Outstanding Natural Beauty and National Scenic Areas. We are publishing a new policy to support engagement with our stakeholders on this topic and plan to increase levels of activity from RIIO-ED1.

SF$_6$ – see page 116 and Annex 4C.3: Environmental Action Plan.

Network losses

There are two categories of network losses:

1. Technical losses – these result from the laws of physics where they are an inherent result of power flowing through network assets. They can be managed but can't ever be eliminated.

2. Non-technical losses – these are units of energy transferred but not correctly accounted for due to errors in unmetered supplies, inaccurate billing estimations, and illegal abstraction.

Management of losses is complex because they are difficult to measure and influenced by factors outside of our control.

Technical losses will increase in RIIO-ED2 with Net Zero decarbonisation. The electrification of heat and transport, greater levels of decentralised renewable generation, and increased DSO operation will increase distribution network utilisation, leading to an increase in losses. To manage this increase, in RIIO-ED2 we will consider all reasonable measures which can be applied to reduce losses and adopt those measures which benefit customers.

To do this, we plan to invest £10.8m in asset modernisation over RIIO-ED2 to manage losses. This includes replacing 4 high-loss primary transformers and 795 high-loss secondary transformers with low-loss models.

In addition, we are also taking learning from UKPN RIIO-ED1 innovation and deploying a Mobile Asset Assessment Vehicle (MAAV) to identify LV contact voltages in urban areas.

We are also working with transmission operators and NGESO to take a holistic view of losses during the procurement of flexibility services.

We will continue our industry-leading activities in the area of revenue protection, identifying and reducing electricity theft and billing errors, and improving stakeholder and customer awareness.

We will coordinate our losses interventions with condition-based interventions and network reinforcement, to maximise the efficiency of our loss reduction activities.

We will also increase our understanding of losses in RIIO-ED2. We will combine new sources of data (such as the LV monitoring we plan to install at over 14,100 substations) with network modelling to better understand the losses associated with network interventions.

For more information, see Annex 4A.8: Losses Strategy.

Climate resilience strategy

As a responsible network operator, we already consider the impact on our networks of a range of natural and climate factors such as flooding, storms, and vegetation growth. The magnitude and frequency of these risks are likely to change as the climate changes.

Our Climate Resilience Strategy sets out our assessment of the impact of climate risks on our networks over a range of plausible scenarios based on representative concentration pathways (RCPs). This method is aligned with the approach taken by the UK Climate Change Risk Assessment (UK CCRA) and considers outputs from the Paris Agreement and Committee on Climate Change evidence reports.

We are continuing our engagement with other parts of the energy sector. Our strategy builds on our engagement with stakeholders and other sector work, as well as UK-level assessments to ensure a coordinated and considered approach. We are also members of the newly established ENA Climate Change Resilience Working Group for all DNOs.

Our Climate Resilience Strategy includes recommendations for adaptation which factor into our proactive risk management strategies, including greater levels of flood resilience and proactive vegetation management to inform our prioritised interventions during RIIO-ED2. As this is a newly developed strategy, we are continuing to integrate climate adaption findings within our wider business policies, systems and processes.

For more information see Annex 4A.7: Climate Resilience Strategy.

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Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

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4A.3 Provide Timely and Efficent Connections to support Net Zero ambitions

Our interface with society to deliver the UK's ambitious climate change targets is through customers requesting new low carbon electricity connections. Connections also allow for economic growth through construction and regeneration within our communities.

The development of our RIIO-ED2 Connections Strategy has been led by our customers and will be serviced through technology.

Our RIIO-ED2 foundations

Within RIIO-ED1, we have seen new low carbon technologies (LCTs) enter our connections process, from EV charging to electrical heat pumps. This is in addition to the growth in distributed generation connections to the network prior to and throughout this period. We have also continued to serve connections for new development.

We have provided good customer service in RIIO-ED1 for our customers as demonstrated through the Broader Measure of Customer Service. We have also improved the speed to which customers receive quotations through the Time to Connect incentive. The Incentive on Connections Engagement has delivered stakeholder led improvements to our major connections processes, for our customers working in competitive markets or at our higher voltage levels.

Our RIIO-ED1 highlights:

Our continuing exemplary service has resulted in us being one of the leading DNOs in customer satisfaction for Minor Connections Customers

We have exceeded the minimum industry requirements for customer satisfaction engagement

We have exceeded our performance targets for Time to Connect between 2016/17 and 2019/20

Our Time to Quote performance has generally improved year on year with above average performance compared to other DNOs

RIIO-ED2 changes

We have been able to use the extensive Distribution Future Energy Scenario analysis combined with stakeholder engagement to determine how the uptake of low carbon technologies will undoubtedly affect demand for a network connection.

From this, we now expect in RIIO-ED2 we will manage:

- up to five times the amount of enquiries per annum
- up to 3 times the amount of quotations, and
- more than double the projects requiring physical work to be delivered by us

The biggest increases in demand from our services comes from first time domestic customers looking for a new technology connection in their home. Plus we also expect an emergence in storage connections across our network. New and increasing technologies bring new opportunities.

In this section, you will read about:

- The landscape we expect to see in RIIO-ED2 in terms of increasing demand for new network connections – largely driven by LCT uptake.
- How our RIIO-ED2 connections plans have been developed on the basis of robust analysis and engagement.
- The types of customers we expect per market segment and their associated needs.
- The highlights of our ambitious new technology led RIIO-ED2 Connections Strategy for minor and major connections which will meet the differentiated needs of our various customer types by focusing on simplification, self-service, and efficiency.
- Our proposal for the new output delivery incentive for major connections, which will further drive us to deliver maximum benefits for those customers.
- Our proposal for an additional bespoke ODI for an 'Connection Offer Accelerator' that will improve the speed of service for low voltage customers that are outside the scope of existing incentives.

You can find more detail in:

Annex 4A.28: Connections Strategy

Annex 4B.2: Customer Service Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with connections customers and experts through specific bilaterals, workshops and surveys as well as also asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Information provision – Customers would like clear, understandable information on the process of gaining a connection.

Customers believed that advice is vital to understanding what is involved in the connection process. Advice on timescales (72%) and estimated prices (71%) would be helpful ahead of a new electricity connection. A discussion arose around the importance of addressing new connections queries and problems rapidly. They further suggested that early communications save time for all parties in the long run.

Quality of service – Customers want to receive tailored, relevant communication. And they appreciate our guidance and support.

'Level of advice' was rated one of the most important aspects of the connection experience along with 'speed of quote'. They also highlighted the importance of quick quotes when looking at alternative connections.

Timely connections – Customers would like to receive information, quotations and project delivery efficiently and on time. Agility is crucial in all areas of our connections process – from pre application and the quotation process to eventual project delivery.

Customers broadly agreed that they would expect faster quotation timescales. Particularly for our generation customers, they stressed that the high demand for low-carbon technologies will require processes to move reasonably quickly. All customers strongly agreed that Ofgem should push DNOs to deliver faster quotations and completions for small generation LV works. Low Voltage Demand customers further mentioned that time is critical for them, citing that any help in shortening timescales benefits developers.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our connections plans will enable us to improve the overall connections experience, utilising digital innovations and delivering a proactive, tailored customer contact process to ensure fast response times, all the while improving upon speed of quotation and delivery.

We have **6 detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

NZ7   We will improve the connections quotation experience we provide our customers by offering 100% of customers a pre-quotation consultation and ensuring those customers who request 30 or more quotations a year or have a project exceeding £1m have a dedicated point of contact.

NZ8   We will offer 80% of HV and EHV customers the choice of a firm and a flexible connection where a known constraint exists.

NZ9   Delivering an exemplary major connections service through the use of digital innovations to continuously improve our speed of quotation and delivery.

Percentage of customers who support the commitments*	Household	Commercial
	86.30%	82.00%

Percentage of customers who are willing to pay, at least the ED2 cost, for commitments in this topic area.	80.90%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

30–100k

enquiries to be managed per annum

What we mean by 'connections'

As a DNO we are responsible for ensuring properties, businesses, industry and generation are connected to the network with an installation to suit their needs.

Any customers who want to alter their existing connection apply to us for this service. For instance this could be due to installation of an electric vehicle charger, the need to move position of an incoming supply or to add generation to their premise. For new development, a new electricity connection is required.

We take pride in providing our customers with the connection service they require. This includes working with our customers to understand their requirements, producing quotation offers and, if the customer wishes to proceed with the required works, the delivery of the project.

Predicting Connections Opportunities

As part of our planning, we have engaged with our stakeholders and customers to help us understand the number of customers who will require a new or upgraded connection to our network between 2023 and 2028.

This has been informed by our local stakeholder priorities for both the uptake in LCTs and the levels of construction which will be undertaken within our communities. For RIIO-ED2 planning we have engaged with domestic customers at a level far surpassing any previous engagement for connections. We recognise there will be more domestic customers seeking a connection for the first time in RIIO-ED2. Our modelling process is set out below:

Inputs

- Typical connections volumes in RIIO-ED1
- UK and licence specific Net Zero stakeholder aspirations.
- UK and licence specific construction targets.
- Contracted Schemes

Variables

Areas within our strategy development, e.g.:

- Extent to self service options to receive prices
- Enquiry to Quotation Rate

Other factors such as levels of competition in the market, potential incentive impacts.

Outputs

The expected number of connections schemes within each market segment. This has formed the basis for expected connections expenditure.

The Scale of the Opportunity

Our analysis indicates that there could be up to five times the number of customers who will contact us for a connection during RIIO-ED2 compared to current run rate.

Growth is seen in all market segments, however, most significantly by first-time customers who are looking to connect an EV charger, a heat pump, or small-scale generation in their home. This will have the biggest impact on our low voltage network. We also expect to see increases in higher voltage generation connections to our network, in line with decentralisation of energy ambitions across our licence areas.

This signals a rate of change never seen before in the demand for connection services with the last three years of RIIO-ED2 predicted to see exponential increases in customers contacting us for a connection service.

Understanding Customers Needs

We have ensured the proposals within our RIIO-ED2 Connections Strategy are led by our stakeholders.

In RIIO-ED1, we have exceeded the minimum industry requirements for customer satisfaction engagement. Since 2015, we have completed independent market surveys of a sample of our major connections' customers. We also hold regular connections conferences; strategic stakeholder panels; bilateral meetings and complete account management activities for our connections customers.

The outputs and actions from this are captured and have been incorporated into the foundation of our plan. This is in addition to wider engagement with new and existing customers through the RIIO-ED2 process which is captured within the Section 2 of our Plan.

Our customers have told us that they prioritise:

Information provision – Customers would like clear, understandable information on the process of gaining a connection.

Quality of service – Customers want to receive tailored, relevant communication. And they appreciate our guidance and support.

Timely connections – Customers would like to receive information, quotations and project delivery efficiently and on time. Although we must ensure we meet our Guaranteed Standards of Performance within Connections, our customers have informed us these are often still too longer timescale to wait.

Our Connections Strategy (Annex 4A.28) provides a full overview of our customer feedback and how we service the Guaranteed Standards of Performance for Connections.

Servicing the Entire Market

All of our engagement has allowed us to recognise that the needs of our customers are diverse, therefore our service proposals in RIIO-ED2 are centred around individual customer priorities per market segment. This analysis of customer needs per market segment has been aligned with our volume analysis, which has allowed us to create a profile of our expected customers, presented in the table overleaf.

Market Segment	Increase 2019 v 2028 forecast/ annum	Customer Type	Customer Needs
Customer Types & Needs			
		Customer Type	Customer Needs
Minor Connections			
LVSSA	Up to 7x	Domestic customers wanting to make alterations to their existing supply. Largest increases attributed to LCT uptake.	Simple and transparent connection process. Serviced by easy to use tools. Fast and easy identification of LCT connection requirements
LVSSB	Up to 6x	Small industrial and commercial customers wanting to make alterations to their existing supply either. Largest increases attributed to LCT uptake.	Simple and transparent connection process. Serviced by easy to use tools. For LCTs – simply identify existing fuse size and notify DNO instantly to determine any upgrade to fuses or wider network.
Major Connections			
Metered demand LV	Up to 5x	Large industrial and commercial users or small development sites. Multi plot housing or commercial developments.	Transparent information on connections processes and costs. Access to competition. Easy to use tools & information & faster quotations.
Distributed generation LV	Up to 30x	Domestic or commercial Low Voltage customers embedding generation to an existing supply. Customers establishing a new connection for standalone or embedded generation from the outset.	Transparent information on connections processes and costs. Access to competition. Connect & notify where appropriate. Fast quotations through deployment of intuitive or automated solutions and investment in self-service through our website.
Metered demand HV	Up to 13x	Commercial or industrial customer wishing to increase their capacity for electrification or expansion. A new customer developing a large housing or commercial site.	Transparent information on connections processes and costs. Access to competition. Access to capacity data and flexible connection options. Advice from specially trained connections staff
Distributed generation HV and EHV	Up to 6x	Commercial or industrial customer embedding generation to an existing supply. Customers establishing a new connection of standalone distributed generation at scale.	Transparent information on connections processes and costs. Access to competition. Access to capacity data and flexible connection options. Advice from specially trained connections staff who can advise on implications and enduring costs of alternative solutions.
Metered demand HV & EHV	Up to 2x	Commercial or industrial customer wishing to increase capacity for electrification or expansion. New customers developing a significantly sized regeneration scheme such as housing or commercial. Could include electrified technology for heating / processes and significant amount of EV charging.	Transparent information on connections processes and costs. Access to competition. Access to capacity data and flexible connection options. Advice from specially trained connections staff who can advise on implications and enduring costs of alternative solutions
Metered demand EHV and above	Up to 2x	Commercial or industrial customer wishing to increase capacity for electrification or expansion. New customers developing a significantly sized commercial or industrial site possibly with electrified technology for heating / processes and significant amounts of EV charging.	Transparent information on connections processes and costs. Access to competition. Access capacity data and flexible connection options. Advice from specially trained connections staff who can advise on implications and enduring costs of alternative solutions
UMS Other		Street furniture providers working on behalf of local authorities or other utilities such as telecoms.	Access to guidance on criteria for unmetered connections A fast connection process from the point of application. An ease of payment with a robust process for the reconnection of any unmetered supplies when required.
UMS LA			
UMS PFI			

Basis of our Connections Strategy

Our Connections Strategy is customer led and supported by technology. Based on the stakeholder feedback we have received the three strategic focus areas of how we will deliver connections in RIIO-ED2 are:

Simplification – of processes, systems and communication with our customers.

Self-Service – support and empowering customers to support all or part of the connections journey.

Timely & Efficient Connections – measures to improve the speed of and efficiency of process.

The below infographic demonstrates the initiatives contained within our Connections Strategy. Within Annex 4A.28: Connections Strategy you will read about the detailed targets and commitments set within these initiatives. These will support us in meeting and exceeding baseline standards for the Major Connections Incentive in RIIO-ED2 and improve our performance through Time to Connect.

Driving Improvement and Efficiency

Our Connections Strategy demonstrates what we believe to be the most efficient way to manage the expected future connections volumes whilst also delivering the standard of service our customers expect. The only other alternative to this strategy would be to be significantly increase the level of resources which currently maintain heavily manual processes.

This investment could save

20m

of our digitalisation expenditure supports connections.

15m

of additional costs per year by 2028 paid for through connections charges.

Specific Factors

Our engagement has also highlighted any specific factors that relate specifically to ourselves as a distribution network operator or our individual geographical areas. Our Connections Strategy details our response to some of the highlighted feedback from customers for both minor and major connections customers.

For example, within our most recent ICE plan in 2021 we have received feedback for improvements to the use of our system Radar. We appreciate that customers would welcome fundamental changes to this system and within our ICE actions we have established Radar working groups with a view of implementing improvements. Ahead of the start of RIIO-ED2 we plan to hold a consultation on the future of Radar to determine how this system can be incorporated into the wider digitalised and simpler solutions we have planned in RIIO-ED2.

Distribution System Operation & Connections

As our network becomes smarter, we want to expand our Connections offerings to align with our Distribution System Operator activities as referenced in Chapter 4A of our plan. For any customers connecting in areas of known constraints or if a new 'firm' connection imposes a new constraint, we will work with our customer to understand the most appropriate solution to meet their needs.

In RIIO-ED1 we implemented the Dunbar Active Network Management scheme which allowed the connection of distribution renewable generators before transmission reinforcement works could be carried out. This allowed for a faster connection process for these customers.

In RIIO-ED2 we will build on these concepts of a more dynamic system through the use of increased network monitoring and wider delivery of the Active Network Management.

Simplication

Transparency Upfront
Provide clear, revealing information tailored to individual needs, on-line.

Trackable Progress
Allow customers to track their connection online from enquiry through design, acceptance and delivery.

Process Rationalisation
Make our process(es) clear and easily understood. Including ICP & IDNO works.

Supporting Self Service
Offer additional support for customers during the roll-out of our new tools and information services.

Self Service

Intelligent Assessment
Provide tools to enable automated network assessment.

Immediate Assessment
Provide customers with an immediate assessment of their connection request.

Real-time Information
Make network information available, including capacity and constraint analysis.

Supporting Digitalised Self Service
Ongoing support for customers in using the digital suite of tools available.

Timely & Efficient Connections

Agile Delivery
Improve the speed of delivery through intelligent outsourcing and refined processes.

Timescales to Suit Customers
Work to customers timescales for the provision of an offer or connection complete.

Fast Flexibility
Provide technical and commercial alternatives to customers at HV & above in areas of known constraint.

Supporting an Evolving & Competitive Market.
Continuous, agile and iterative stakeholder engagement activities.

Our commitments – delivering timely and efficient connections

We will offer 100% of customers a pre-quotation consultation (face to face or virtual).

We will nominate a point of contact to all customers requesting 30 or more quotations per year, or have a single project exceeding £1m in value.

We will offer 80% of HV and EHV customers the choice of a firm and a flexible connection where a known constraint exists

We will meet the timescales our customers seek in relation to the provision of an offer, at least 90% of the time.

We will make capacity maps available from ED2 and will be updated every 3 months.

"We will improve delivery timescales by 2% year on year from the start of ED2".

Minor Connections (1-4 low voltage plots)

For customers who wish to connect a single premise or up to four plots, we are committed to delivering high levels of customer satisfaction and timely quotations and construction.

We want to improve the expected level of satisfaction for these customers to an average 9.4/10 in terms of Broader Measure of Customer Satisfaction scores. These are often first time or one-off customers. Our approach and commitments to serving the customer satisfaction for these customers is set out in our Broader Measures of Customer Satisfaction.

The Time to Connect Incentive intends to reward us if we can quote and connect minor connections faster than we do now. We must ensure our speed of performance is maintained or improved through RIIO-ED2. Given the volume increases we expect for minor connections then we must ensure our performance is not compromised, but this will not be easy and will require significant changes in how we do things. To manage this smarter we have developed a Minor Connections Strategy which is contained within Annex 4A.28: Connections Strategy. This sets out a customer led ambitious approach to offering automated and fixed price solutions upfront for simpler works. This will be teamed with more transparent customer support so that customers who are unfamiliar with the connections process are serviced to the level they need. We will always commit to servicing customers through the channel of their choice.

Bespoke Incentive for Low Voltage Demand & Generation Customers – LV Connections Offer Accelerator

The Time to Connect Incentive has been positive in RIIO-ED1 for continually improving levels of service for Minor Connections Customers in terms of speed of quotation offer. However, it is recognised that some Low Voltage Generation connections (DGLV) and Low Voltage Demand connections (LVAL) customers often require works which are of the scale and value of Minor Connections however are served by a more complex, far reaching incentive in Major Connections.

LV Demand & Generation are critical elements within the drive to Net Zero. Based on customer feedback, it is recognised that our customers would like faster quotations in order facilitate the LCT uptake quicker. We anticipate a significant increase in enquiries for DGLV and LVAL over the RIIO-ED2 period. Current Forecasts show more than an 800% increase on RIIO-ED1 volumes for LVAL with a 1000% increase forecast for DGLV.

We do recognise some DGLV and LVAL schemes will be complex in nature however we believe we should make efforts to target faster timescales for issuing quotations for all customers. We recognise these works take place in competitive market segments, therefore offering improved timelines for independent connection providers as well as customers who come to us direct.

To achieve our ambition in this bespoke proposal we will again be relying on revolutionising our quotation preparation through digitally automated offers for simpler works and through enhanced digital design tools for both customers and staff to deliver faster quotations than today. We have set the targets for issue of quotations at a level better than our RIIO-ED1 performance rather than a target of Guaranteed Standard of Performance as we want this incentive to further improve on our operations to date

For instance, for a Full Works DGLV Offer, current guaranteed standards of performance are 45 working days for the production of an offer. In RIIO-ED1 our average performance was 26 days so therefore we are targeting 18 days in RIIO-ED2 through the delivery of this incentive. We directly surveyed customers who have recently received this service for their views on this proposal. 76% of those surveyed agreed that this initiative will deliver the improvements they would like to see in RIIO-ED2.

Based on a typical customer case study we expect that receiving a DGLV quote in 18 days on average saves the customer.

Further detail on the additional commitments we have set out as part of this bespoke incentive is found in Annex 4A.28: Connections Strategy.

£380

Could be saved by a typical LV Generation Customer per scheme in labour costs through the Our LV Connections Offer Accelerator Proposal

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Major Connections

We know that customers who are connecting larger or more complex projects will require more support, information, and advice both upfront and throughout the process. Our approach and commitments to serving these customers is around increased network data transparency, easier to navigate processes, and continuous engagement as we recognise the needs of these customers are likely to change. We also are committed to faster quotations for Major Connections Customers detailed in our Major Connections Strategy.

We appreciate that the nature of certain types of connections are complex and we will support these customers in designing network solutions which best suit them. To do this, our network designers require future-ready innovative design tools, supplemented by artificial intelligence, network data and real time analysis. Our designers will have industry leading electrical design knowledge delivered through a comprehensive suite of workforce initiatives including upskilling and recruitment as part of our approach to a Just Transition. This will provide customers with the most economical solution for them, even providing alternative flexible arrangements to potentially break down any barriers. Future 'Net Zero Ready' skills are an important part of this with more detail found in Annex 4C.4: Workforce Resilience Strategy.

We are also committed to promoting competition for our customers so they have a choice of connections provider to suit their needs. In RIIO-ED2 we will use the Code of Practice to support the market, providing alternative connection providers with the opportunity to manage increased aspects of the work themselves, for instance self determination of point of connection.

Impact of the Access and Forward-looking charges Significant Code Review (SCR)

If system costs are to be minimised, the electricity network will need to become more flexible to accommodate increased use of the network by distributed generation, heat and transport. Providing clearer signals to new and existing customers through distribution network charges (influencing where they connect and how and when then use the network) is a primary objective of Ofgem's Access SCR.

We anticipate the output of the Access SCR to include:

- A reduction in upfront contributions by connection customers to the cost of network reinforcements;
- Greater clarity of access rights for customers connected on a non-firm basis; and
- Distinct time of use and locational signals driven through distribution network (use of system) charges.

Ofgem is planning to publish a minded-to consultation on some of the above charging reforms in Summer 2021. Although it is difficult to make an accurate assessment of the impact of these potential changes for our customers and our Business Plan (without understanding the totality of the Access SCR reform), we anticipate it will result in an increase in connection volumes and shift in recovery of reinforcement costs from connection to network (use of system) charges (potentially £100m or more).

This impact will be an area of focus for our Final Business Plan, for which we are currently preparing a number of charging models to enable us to better understand the impact and implications for our customers.

New Output Delivery Incentive: Improving Service Standards for Major Connections Customers

The baseline principles fully reflect the priorities for our customers, as well as our focus areas in providing connections to our customers.

- **Principle 1:** Support connection stakeholders prior to application by providing accurate, comprehensive and user-friendly information
- **Principle 2:** Deliver value for customers by ensuring simplicity and transparency through the applications process
- **Principle 3:** Facilitate the delivery of timely and economical connections that meet customers' needs

To serve these baseline expectations and the needs of our customers some of the commitments within our Major Connections Strategy include:

- Improving our pre-application offering by increasing the amount of open data and rationalising our processes.
- For customers receiving quotations, we will be implementing simple self service tools where appropriate, with a transparent connections portal to track the stages of a project. Our own staff will have better tools to service quotations faster with improved communication for customers.
- In the delivery and construction of a connection we will again make this process simpler and more efficient, incorporating flexibility where possible to realise connection quicker.

We are proposing to measure our performance against the baseline principles through:

- Reporting on effectiveness of stakeholder engagement
- Measuring customer satisfaction at pre-application, quotation and delivery stages targeting 9/10 by the end of RIIO-ED2.
- Quoting faster than Guaranteed Standard Timescales.
- Implementing measures to improve delivery timescales.

Further detail on the structure, metrics and commitments for this incentive is found in Annex 4A.28: Connections Strategy.

Our Detailed Strategy

Within our Connections Strategy you will read more detail about:

- Our RIIO-ED2 connection forecasts.
- Our Minor Connections Strategy, to meet the needs of increasing domestic and small commercial connections.
- Our Major Connections Strategy, for our commitments for larger connection customers.
- Our 'LV Connection Offer Accelerator' Proposal.

How our initiatives are enabling us to exceed baseline

The following diagram provides an illustration of our assessment into where we plan to meet baseline expectations and how our Connections Strategy enables us to go above and beyond Ofgem's baseline expectations for Major Connection customers.

Each of the three segments represents one of the three Major Connections baseline principles and the dots within each segment correspond to each one of Ofgem's baseline expectations for Major Connections customers.

The red dashed line represents the expected performance level DNOs are to operate at to meet the baseline expectation set out in the Sector Specific Methodology Decision and the Business Plan Guidance. The position of each dot on the diagram indicates our ambition against baseline expectation based on our strategies and initiatives that are described in full detail in Annex 4A.28: Connections Strategy.

Baseline Expectations that are on the red dashed line are those where we are confident in meeting the stretching targets set by Ofgem and those towards the outer edge of the diagram represent where our Connections Strategy and initiatives will help us not only to meet but go above and beyond for our customers. For more detail on how we will deliver on these ambitions in RIIO-ED2 please refer to Annex 4A.28: Connections Strategy.

Support connection stakeholders prior to application

1. Provide up to date relevant information
2. Communicate a clear connection process
3. Clear explanations for types of connection products and costs
4. Help and support through appropriate channels
5. Robust process to proactively engage with stakeholders
6. Signposted information on capacity available
7. Guidance on unmetered connection criteria
8. Tailored pre-application support communications

Simple and transparent application process

9. Clear, simple application process
10. Tailored communications plans
11. Provide clear quote breakdowns
12. Process to support customers identify changes to secure a quicker or cheaper connection
13. Provide clarity around curtailment for flexible connection customers
14. Guidance on DG connection criteria
15. Fast-track options for critical infrastructure

Timely and economical connections

16. Tailored communications plans
17. Timely cost reconciliation
18. Process for releasing unutilised capacity for slow projects impacting other customers
19. Process for certain customers to support others connect more quickly/cheaply while in the connections queue
20. Provide access to services that support timely and economical connections

Legend:
- ● Ambition against specific expectation
- - - Baseline expectation
- ■ Below Baseline
- ■ At Baseline
- ■ Exceeding Baseline
- ■ Substantially exceeding Baseline

4B.1: Deliver excellent satisfaction and enhanced services for all customers

The future of customer service is about making connections that matter. In the transition to Net Zero, we believe that our customers will need support in new areas and in new ways, which is why we will become more proactive to help them navigate an increasingly complex landscape.

There is a critical balance to be struck in how we deliver this. We need to give customers choice and convenience, using digitalisation to make processes fast and simple, whilst at the same time delivering personal support where our customers need this most, tailored to their needs. This mix of empathy, efficiency and efficacy will be critical to success.

Underpinning all of this, and at the heart of our success, will be our staff. We always consider our actions through our customers' eyes, and we will embrace the passion of our people to deliver exceptional service.

Our RIIO-ED2 foundations

In RIIO-ED1 we set out an ambitious plan to continually improve the levels of service for our customers. We have outperformed the targets we set out each year in RIIO-ED1, and are well on track to reach our ultimate target of an overall customer satisfaction score of 9.4 out of 10 by the end of the current price control period.

Our RIIO-ED1 highlights:

1st ranked DNO in Ofgem's Broad Measure of Customer Satisfaction (BMCS) in 2019/20 and Top 2 in 2018/19 & 2020/21

Current RIIO-ED1 BMCS score of 9.23 / 10

Benchmarked 1st against all UK service sectors in the Institute of Customer Service (ICS) Customer Service Index

1st in the World to achieve both the BSI Customer Service Kitemark & Vulnerability Standard

RIIO-ED2 changes

As we transition towards a Net Zero world activity levels will increase significantly with the predicted uptake of new low carbon technologies, the introduction of which also has the potential to bring a level of disruption to customers as the network is upgraded to ensure it is fit for purpose.

At the same time, customer expectations will also increase, especially relating to how interactions with organisations will change in a digital era.

Whilst our customer satisfaction levels have been consistently excellent throughout RIIO-ED1, we also realise that our service offerings will change as our business evolves, and its important that where we offer new services, these are also delivered to the same exceptionally high standards.

Throughout ED2 we will build on our leading customer service, evolving our service offerings to support our customers and communities throughout the energy transition.

In this section, you will read about:

- How our RIIO-ED2 customer service strategy and plans have been developed on the basis of our experience, analysis and benchmarking activity.

- The highlights of our ambitious RIIO-ED2 Customer Service Strategy.

- How we will achieve exceptional customer service by delivering proactive, tailored service based on preferences, underpinned by data.

- The benefits that our support and actions will bring for customers.

- The ambitious customer service targets that will drive our progress and be used to hold ourselves to account.

- Our proposal for a bespoke ODI to drive exceptional service for customers benefitting from our plans to provide a range of services aimed at helping to reduce household or business costs, drive efficiency and help them access the benefits of the low carbon transition.

You can find more detail in:

Annex 4B.2: Customer Service Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with customer service experts for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Have the best customer satisfaction levels amongst UK companies

98% of customers and 84% of stakeholders believe we should achieve the best possible customer satisfaction levels and feel that we should be aiming to be the best we can be in every aspect of customer satisfaction.

Widen the channel offering for customers, including greater use of digital technology

The vast majority of both customers (95.4%) and stakeholders (91.7%) believe we should offer customers a service where they can register their preferred method of contact and language, and that these preferences are used during any interaction. When asked what channels were important, both groups had less clear preferences, with some happy to use traditional channels (phone, email etc) and others looking for a wider offering (2 way SMS, web chat etc).

Proactively contact customers during a power cut where they request such contact methods

Over 90% of customers and stakeholders believe that we should communicate proactively with any customer who registers for such support. The vast majority also agreed with our ambition to proactively contact our most vulnerable customers via a personalised phone call during a power outage.

Offer a range of enhanced advice services, where we are best placed to do so

Stakeholders supported us in offering a broader range of services for registered customers aimed at reducing household/business costs, driving efficiency and reaping the benefits of the low carbon transition. They also added that it was important that we promoted these services to those who will benefit most. Customers also had a high level of support for these services being offered, with over 95% agreeing they should be a core part of our offering.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. We are committed to providing proactive and tailored service to customers based on their individual preferences and interests and underpinned by quality data. Our services will be delivered to a consistently high standard across all of our customer types with the majority of customers scoring us 10/10 for satisfaction no matter who they are or how they interact with us. We will also look to support customers in the transition to low carbon technology by looking for ways to engage them and help them both adopt new technologies and become more energy efficient.

We have 18 detailed commitments in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

TP1 We will deliver a proactive, tailored customer contact process through enhanced methods to ensure fast response times. We will always contact them In a language and channel of their choosing providing greater levels of information, and reliably delivering services

TP2 We recognise power outages as one of the highest customer priorities and will provide customers with improved support and response before, during and after either planned or unplanned occurrences with an enhanced approach for our most vulnerable and at-risk customers

TP3 We will help customers capitalise on the benefits of the energy transition by delivering advice services to 40,000 customers who register with us to help reduce costs, drive efficiency and access the benefits of low carbon technologies

Percentage of customers who support these commitments*	*Household*	*Commercial*
	78.50%	**85.70%**

Percentage of customers who are willing to pay, at least the RIIO-ED2 cost, for commitments in this topic area.	**82.40%**

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

Benchmarking & Trends

Our ability to be agile and react quickly to changing trends and customer needs is essential if we are to deliver exceptional service. The COVID-19 pandemic has exposed those organisations who have not responded well enough to their customers' changing needs; customer satisfaction across the UK has dropped to the lowest level since 2015. For organisations to survive they must understand the needs of their customers and adapt their service, doing whatever it takes to serve their customers with care.

To ensure we deliver consistently high standards, we continuously review the service we deliver and benchmark ourselves against UK and global peers. This helps us to challenge our standards and also understand emerging trends to ensure we are able to deliver exceptional satisfaction for our customers.

Benchmarking our performance

Measured against best in the UK

We conduct an external benchmarking survey twice every year through the UK Institute of Customer Service (UKCSI) to understand how we compare against the best companies in the UK. This consistently places us in top position when compared with the Top 50 companies in the UK and other utilities.

Overall satisfaction (UKCSI score)

SPEN	89%
First Direct	85.5%
John Lewis	85.1%
M&S	84.1%

Scorecard	UKCSI	Utilities	SPEN
Experience	77.7	74.0	90.1
Customer Ethos	76.2	71.7	88.2
Emotional Connection	76.1	71.1	88.2
Ethics	75.2	70.6	87.0

High performing DNO

For 3 years in a row we have achieved the BSI certification for both the Customer Service Kitemark and the Inclusive Service Verification scheme. These stretching accreditations test our service and processes, ensuring we are always forward looking.

bsi Customer Service KITEMARK™

High performing DNO

Since 2018/19 we have finished in the Top 2 highest scoring DNOs as measured by Ofgem's Broad Measure of Customer Satisfaction (BMCS) and finished as top DNO in 2019/20.

SPEN Customer Satisfaction

Mar-16	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21
2nd	2nd	3rd	2nd	1st	2nd
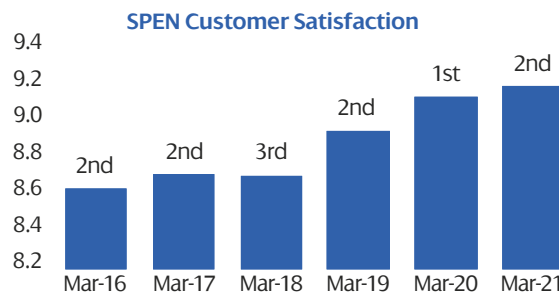
Globally leading

As part of Iberdrola, a leading global utility group, we also carry out in-depth benchmarking between network operators within our group. This international comparison again places our Customer Service outcomes as the leading benchmark in all countries.

Global customer service maturity score

UK	94%
Spain	92%
Brazil	72%
USA	59%

Understanding Trends

- Understanding which interactions have the greatest emotional value for our customers will be essential to drive satisfaction. Customers will expect communications based on the things that engage them most.

- Removing effort for customers, whether that is through technology or through proactive personal engagement, will be important to ensure they feel looked after and supported – but also to tailor services to their unique needs and preferences.

- Using AI and data science will be essential to understand behavioural change and stay ahead of expectations, particularly as customers adopt new technology. Whilst self-serve and automation will be expected, customers will also want empathetic and tailored service on the interactions that are important to them. Digital solutions can help support these outcomes.

- These emerging trends will also impact our workforce and how we deliver the solutions to our customers. To deliver enhanced services for our customers, our teams will need to be 'tech savvy' and able to solve problems to deliver tailored service with empathy, proactively.

Emotional value

Workforce fit for the future

Exceptional consistent service

Remove customer effort

AI & data science to tailor service
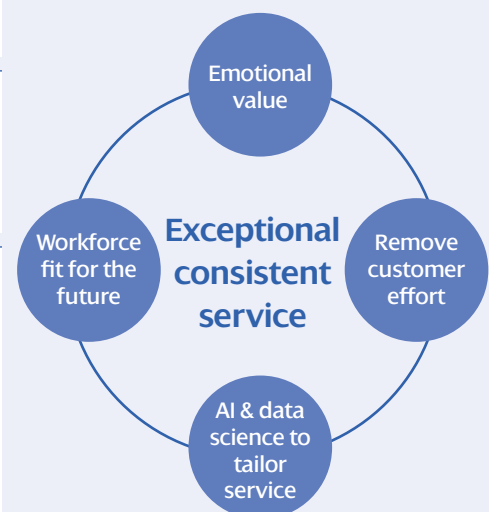
Our Mission Statement

Our customer service mission statement lays out our ultimate ambition, ensuring that we are facing in the same direction to achieve our commitments and ultimately our customers' needs. This mission is detailed below along with our six 'action statements' which provide solid foundations for our strategy and are essential to delivering optimal outcomes for our customers.

We will be a service leader in the UK, providing proactive and tailored service based on customers preferences and needs. By delivering focused support to our vulnerable and disadvantaged customers that is easy to access, we will help them save money, access the benefits of the low carbon transition, make use of technology, and receive support for wider social issues.

We will deliver this mission through the following enablers:

Mission Statement

| Identify needs | Design response | Deliver response | Measure impact |

Engagement

Engage directly with customers and stakeholders who understand customer needs.

Data

Comprehensive and up-to-date data allows us to understand our customers and their needs.

Services

A portfolio of free services designed to address the reoccurring needs of customers while delivering value for money.

Training

Train staff, partners and contractors to ensure they have the tools, resources, and understanding needed to identify and respond to customers' needs.

Partnerships

A network of partnerships to reach and deliver support to customers across our local communities.

Measurement

Forecast and measure impact delivered by all initiatives to ensure we deliver industry leading value in everything we do.

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Focused on the right long-term outcomes

In creating our strategy we have asked ourselves what difference we are trying to make in the long term. Our overarching outcomes define the change that will happen as a result of our actions.

We have set ourselves a long term goal to be agents of change, developing new ways of working to enable direct benefits to be delivered to our customers, ensuring fairness and equal access as we transition to Net Zero.

Long Term Outcome 1

By 2030, 90% of all customers who rate the service we provide will score us 9/10 or higher.

81%   **88%**   **90%**

2021   2028   2030
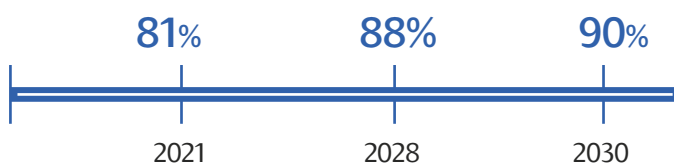
We've driven continual improvements and delivered leading performance in our Customer Satisfaction levels in RIIO-ED1. We recognise that satisfaction needs to be measured consistently across all customers and services and it is vital that we deliver exceptional service no matter the customer or type of contact we have.

Long Term Outcome 2

By 2033 90% of customers will be proactively served, receiving service tailored to their preferences and needs.

Vulnerable customers in a powercut → Available to all customers in a powercut → 90% of all services proactive

RIIO-ED1   RIIO-ED2   RIIO-ED3
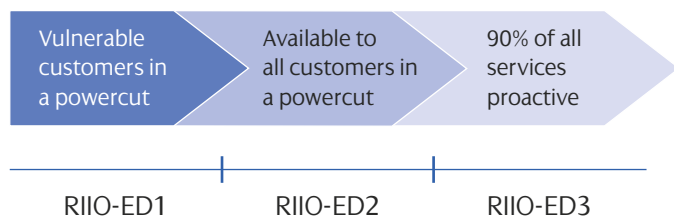
Reducing customer effort and understanding what is important to our customers will be the cornerstone of our strategy. Our long term aim is to proactively deal with issues before they arise, reducing effort for our customers.

(Examples of this are: avoiding customers having to come to us for load checks and removing faults before they occur).

Long Term Outcome 3

Our excellent service is embedded in everything we do by 2028.

Customers included in scope of BMCS score us 9.4 / 10 → **All customers that we deliver services for score us 9.4 / 10**
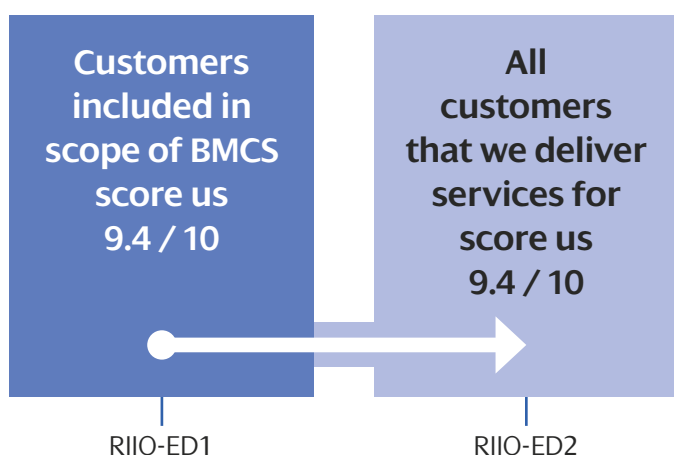
RIIO-ED1   RIIO-ED2

By the end of RIIO-ED1 we will have delivered satisfaction levels for customers in scope of BMCS of 9.4/10. However we realise volumes will increase in areas such as new connections and low carbon technology enquiries and want to ensure we deliver this level of service across all of our customers no matter how they contact us.

Our approach

As we transition towards a Net Zero world, activity levels will increase significantly with the predicted uptake of new low carbon technologies, the introduction of which also has the potential to bring a level of disruption to customers as the network is upgraded to ensure it is fit for purpose.

At the same time, customer expectations will increase, especially relating to how interactions with organisations will change in a digital era.

Whilst our customer satisfaction levels have been consistently excellent throughout RIIO-ED1, we realise that our service offerings will change as our business evolves, and it is important that where we offer new services, these are also delivered to the same exceptionally high standards.

Whilst the long term outcomes provide a high level view of our ambition, we have also defined the focus areas around which our commitments are formed, ensuring a strong linkage back to benchmarking, emerging trends and engagement.

To achieve this mission, we will focus on four areas:

Exceptional customer satisfaction levels	**1**
Proactive, tailored contact model	**2**
Customer centric information and timelines	**3**
New support services	**4**

Our ambition at a glance

In collaboration with our customers and stakeholders we have developed and refined a series of detailed commitments that show the actions we will take and the Service Levels we will meet during RIIO-ED2 to deliver on our long term outcomes, strategy and, ultimately, our mission statement for customers.

Highlights from our commitments are shown below and full details can be found in Annex 4B.2: Customer Service Strategy.

Customer Satisfaction

Delivering customer satisfaction levels of 9.4 out of 10 no matter what service or customer type

Channels & Response Times

Multi channel offering – Emergencies responded to in 10 seconds and Non emergencies in 5 mins

Proactive Preference

Customers offered their channel and language of choice for all contacts and can receive proactive contact from us

Planned Interruptions

When we undertake planned work we will talk to customers face to face beforehand making sure all vulnerable and commercial customers are seen

Complaints

90% of complaints answered in 1 day and 99% in 31 days to customers satisfaction

Our Bespoke Output Delivery Incentive: Advice Services

We are proposing a bespoke incentive in RIIO-ED2 as we above and beyond in providing great service for customers, helping them become more energy efficient and save money on their electricity bills.

Any customer will be able to register with us to receive a range of services aimed at helping to reduce household or business costs, drive efficiency and help them access the benefits of the low carbon transition. Working with partners, for all customers we will offer: a funding advice service, energy efficiency advice, energy charges support, independent help for tariff support, and access to an energy usage portal. In addition, for commercial customers we will offer an energy partner and planning service.

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Exceptional customer satisfaction levels
1

Customer expectations will continue to increase, especially when it comes to interactions with organisations in the fast-changing digital era. Customers expect information to be available when they require it, in the format that suits them best. To ensure we are fully equipped to deal with these heightened needs, we are looking to invest in digital solutions that not only make contacting us and finding information easy for customers, but also provide us with an efficient and powerful information source that can be used to tailor our interactions to specific customers' needs. In addition, we will continue to focus on ensuring our governance forums remain an effective mechanism for monitoring customer satisfaction, providing early sight of any issues to enable swift intervention, and providing a richness of data that can shape forward looking plans and strategies. As a result, we are committing to continue delivering the excellent levels of service customers have received from us during RIIO-ED1.

Whilst our customer satisfaction levels have been consistently excellent throughout RIIO-ED1 for customers in scope of BMCS, we realise that our service offerings will change as our business evolves. It is therefore important that we deliver new services to the same exceptionally high standards as our well established services and all customers receive the same level of service. For this reason, we are committed to achieving 9.4 out of 10 customer satisfaction by the end of RIIO-ED2 for all customers, no matter how they contact us.

We also understand that despite delivering industry-leading levels of customer satisfaction, there are times when our customers do not believe we have met these high standards. Whilst these cases are rare, it is vital that we identify the cause of dissatisfaction and respond in a timely and effective manner. That's why we will aim to close 90% of complaints to the customers satisfaction within one working day, and 99% within 31 days. We will make sure the root cause of the complaint is addressed properly to prevent future recurrence. To further strengthen the support we provide to customers during these times, and based on customer feedback from our engagement program, where it is practical to do so, a customers complaint will be handled by a single point of contact.

Our commitments – delivering leading satisfaction:

We will deliver customer satisfaction levels of 9.4 out of 10 across RIIO-ED2 for all areas in scope of BMCS.

For customers receiving any service from us, no matter the contact channel we will deliver satisfaction levels of 9.4 out of 10 by the end of RIIO-ED2.

Complaints will be resolved within the following timescales:
- 90% of complaints resolved in one working day
- at least 99% of complaints resolved in 31 days

We will also target zero repeat complaints in 12 months

Proactive, tailored contact model
2

Evolving our contact methods

We will prioritise customers contacting us to report a power cut. In RIIO-ED1, we set a target of answering these calls in 10 seconds or less and making sure less than 1% of these calls were abandoned. While we are maintaining these service levels in RIIO-ED2, we understand that customers expect a wider range of channels be made available to them, whilst expecting the same quality of service no matter the channel. That's why we are committing to increasing the number of ways a customer can contact us to report a loss of supply or an emergency situation, giving customers the option to continue to contact us by phone, text us, use our online facilities, or contact us via social media. No matter the channel, the service levels and experience will be the same.

Whilst we will prioritise customers in times of greatest need, we also recognise that customers need to regularly get in touch with us for non-urgent matters, such as requesting a new connection, or obtaining their meter reference (known as MPAN). Whilst we will continue to answer these queries in a timely manner, our engagement with customers has prioritised quality of information provided during the initial contact as more important than speed of response. Therefore, in addition to offering a series of ways to contact us, including phone, text, online, email and social media, we will place a focus on providing a high-quality update to the customer during this initial interaction. As a minimum, customers will receive an acknowledgement of their request, a unique reference number and be provided with timescales associated with the resolution of their query within five minutes of making contact with us.

In addition to focusing on offering customers a wider channel offering, but with a consistent level of service, another principle that will underpin our customer contact strategy is that we will look to capture customers' preferred contact methods and language. This will cover those customers with sight and hearing loss or impairment, and those whose first language isn't English. We will then look to use these preferences during every interaction we have with our customers.

Whilst customers have told us they want a wide range of channel offerings and expect a consistent service no matter the channel, they also have a strong desire for proactive communication, especially should they experience an unplanned loss of supply. In RIIO-ED1 we committed to keeping our vulnerable customers updated during a fault, and in RIIO-ED2 we will continue to proactively contact our vulnerable customers to keep them informed, but also widen that service to all customers who wish to register for proactive updates.

Enhanced support for vulnerable customers

We believe that vulnerable customers should not need to make contact with us during an unplanned interruption, and we will continue to provide proactive, timely contact to all customers registered on our PSR to ensure they remain updated with the latest information we have. We also want to provide additional reassurance for those customers who are most at risk during a power cut, specifically those who rely on electricity for medical equipment (such as those who use oxygen concentrators), or those who struggle with their mental health.

This is why we are committing to proactively contact these customers with a personalised telephone call whenever they experience a power cut, and speak to them face-to-face ahead of any planned disruption to their power supply to understand their specific needs and look to put contingency plans in place where possible. Our Vulnerability Strategy (Annex 4B.1) provides further details on the types of support that we will offer our customers during these times of need.

Our commitments – evolving our contact methods:

When a customer contacts us to report a power cut or an emergency, we will respond in 10 seconds or less, regardless of the channel used. We will make sure less than 1% of telephone calls in this area are abandoned.

When a customer contacts us regarding a non-urgent matter, we will respond on average within five minutes, providing the customer with key information.

We will provide a service for customers to register their preferred method of contact and language and will use this during any contact with them throughout RIIO-ED2. We will promote this in our awareness campaigns every year.

Any customer will be able to register with us to receive proactive contact through their preferred method of communication when a power cut occurs. This will include updates throughout the power cut and notification when power is restored. We will contact at least 99% of those who have requested this using their preferred method.

Our commitments – enhanced support for vulnerable customers:

We will proactively contact customers who are in our highest risk groups through a personal phone call when they go off supply. This is to give them additional comfort when they are medically dependent on electricity, or struggle with mental health.

95% of prioritised customers (high risk) will be spoken to face-to-face in advance of any planned power cut. Note – high risk relates to vulnerable & commercial customers.

We will proactively contact all customers registered on our Priority Services Register when a power cut occurs via their preferred method of contact including updates throughout the power cut and notification when power is restored. Customers will also be able to state at the point of registration if they would like to be contacted at all times of the day and night.

Customer centric information and timelines

3

Improving the quality of information provided

To improve the quality of information we provide customers, we are investing in enhancing our systems to capture and process more information than ever before. We can then provide customers with timely, accurate information in simple formats. For example, when experiencing a power cut, we will make sure that customers are given key information not just through their preferred contact method, but in a personalised, accurate and relevant manner.

To facilitate the extensive network investment plans required to support our transition towards Net Zero, pre-arranged network upgrades will sometimes be necessary. Although we aim to minimise any disruption to customers, the nature of these upgrades mean that in order for our teams to work safely, some customers will experience a planned loss of supply. We will give customers as much notice as possible ahead of any unavoidable interruption and will provide them with a comprehensive update on the work being undertaken, why it is essential, what the disruption will mean to them, and how long the disruption will last.

Our commitments – Improve quality of information:

During an unplanned loss of supply, at least 99% of updates provided will include the following information:
- Expected restoration times
- Name(s) of the person or team dealing with the issue.
- Reason for the outage
- Location of the cause
- Support available for vulnerable customers

During an unplanned loss of supply, at least 80% of customers will have their electricity supply restored within the restoration time initially stated.

All customers will be notified in writing at least 10 working days ahead of a planned outage, with at least 90% notified by preferred method of contact 48 hours before work starts. At least 99% of letters will include 5 key pieces of information our customers tell us are important.

Delivering to customers' expectations

Another core part of our strategy is a shift towards customer driven timescales when carrying out work. We recognise through engagement with our customers that they want to dictate when work is conducted and that's why we are committing to delivering work to the customer's requested timelines.

Our commitments – service delivery timelines:

When customers ask us to carry out safety checks, we will make sure 99% or more are visited within three hours of the initial contact.

When customers ask us to support requirements such as new earthing, shrouding or maintenance work, we will deliver 90% of this work to the customers required date (subject to access and traffic management).

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New support services

4

To respond effectively to the challenges customers will face during the next few years it's vital that we not only continue to deliver exceptional levels of service, but also widen the support we provide. All while maintaining the same high standards of performance.

We've segmented our customer base (as detailed in Annex 2.2: Consumer Research Annex) which enables us to deliver tailored solutions to our customers, including our commercial customers, who require additional support navigating the challenges the Net Zero transition will bring.

One of the first activities we will undertake in RIIO-ED2 will be a power cut risk assessment exercise for our commercial customers. From this we will better understand the risks associated with a loss of supply (such as impact on business productivity or costs) and tailor the actions we take to support such customers where practical. These actions could simply be to keep customers informed throughout the duration of the outage or be focused on what support could be provided to mitigate the risk that such an event brings. Our proactive assessments and resulting action plans will allow us to respond quickly and effectively to these events.

Our customer and stakeholder engagement reinforces that all customers are looking for support to reduce costs and help them through the complex landscape of the low carbon transition. The feedback we received was strong not only for vulnerable customers but also for domestic & commercial customers.

We have therefore developed a set of services aimed at any customer who requires support to reduce their bills, be supported through the transition to Net Zero and plan for their future business activities.

We have proposed a a bespoke ODI in this area (Advice Services ODI). This will be assessed once mid-period and again at the end of RIIO-ED2. This assessment will be on both volume of services delivered and the associated customer satisfaction.

Our commitments – new services for customers:

Any customer will be able to register with us to receive a range of services aimed at helping to reduce household or business costs, drive efficiency, and access the benefits of the low carbon transition.

Services for any customer:
1. Funding advice
2. Energy efficiency advice
3. Energy charges support
4. Independent help for tariff support
5. Usage Portal

Additional service available to commercial customers:
1. Energy partner and planning

These services will be promoted through awareness campaigns and direct contact with customers.These will be delivered to 40,000 customers across the RIIO-ED2 period and deliver an NPV of £20m. There will be an SROI of £1.47 for every £1 spent.

We will undertake a power cut risk assessment for all commercial customers signing up to our advice services and our proactive contact service. We will review the risk assessment for these customers and record appropriate actions within three months of registration.

Delivering on our commitments

The level of satisfaction experienced by our customers today is high, however the world is changing and so are customer needs and expectations. To meet the future demands of customers and deliver on our commitments we will need to evolve our approach.

We will need:

A service culture that evolves with the landscape

Data-driven decisions that shape our service

Clear vision of the end goal through outcomes

Technology that joins every aspect of our business

Staff with new skills for the future

Our commitments and outcomes are based on extensive feedback from customers and stakeholders and have taken into account trends and best practice so we are confident in our direction. To deliver on this, we will ensure that our entire business is aligned behind our service vision, recruiting the right people with the right skills and developing our existing staff to tackle the new challenges.

A new standard needs to be set both in terms of the role technology plays in joining-up our business for the benefit of the customer and leveraging our data to an extent we have not seen before.

This is an exciting time for our business and for our customers and getting this right means we will deliver tailored service to customers based their preferences and behaviours proactively before they ask.

4B.2: Support vulnerable customers and communities to ensure no-one is left behind

Our customers and stakeholders have clearly told us that we have a critical role to play in supporting and protecting customers in vulnerable situations whilst delivering excellent levels of service to our customers and communities. With the energy landscape changing, this poses an additional risk to some in society, particularly those most vulnerable. We are therefore committed to increasing the breadth and depth of support we deliver to customers throughout RIIO-ED2.

RIIO-ED2 changes

As we accelerate towards a low carbon future, it will become particularly important to support those customers and communities who are at risk of being left behind in the energy transition.

We are therefore committing to an ambitious set of actions. We plan to build on our current approaches and to do much more to address vulnerability in RIIO-ED2. Our RIIO-ED2 mission statement is:

We will be a service leader in the UK, providing proactive and tailored service based on customers preferences and needs. By delivering focused support to our vulnerable and disadvantaged customers that is easy to access, we will help save money, access the benefits of the low carbon transition, make use of technology, and receive support for wider social issues.

In this section, you will read about:

- Our ambitious RIIO-ED2 Vulnerability Strategy and the performance targets that will drive our progress and be used to hold ourselves to account

- Our proposal for a Customer Value Proposition (CVP) reflecting that our plans go above Ofgem's baseline requirements to deliver maximum benefits for our vulnerable customers

- How we will adopt new and innovative approaches to address vulnerability, including using digital solutions and the sharing of data to improve our reach and support for vulnerable customers

- How our RIIO-ED2 vulnerability support plans have been developed on the basis of best practice, research, learnings and engagement with subject experts, partners and stakeholders

- The capabilities, processes and systems we are putting in place to deliver our Vulnerability Strategy and commitments

Our RIIO-ED2 foundations

We have worked relentlessly throughout RIIO-ED1 to maximise the value we deliver to our vulnerable customers at the most efficient cost. We have supported customers through a range of services they tell us are important to them, both energy and non-energy related, delivered through a network of partnerships and informed by insight from data and trends.

Our RIIO-ED1 highlights:

Delivered over £30m benefits to vulnerable customers

Increased our Priority Services Register by 741,815 households

1st in the world to achieve both the BSI CS Kitemark & Vulnerability Standard

Increased our vulnerable customer satisfaction to 9.22 / 10 for those customers in scope of BMCS

You can find more detail in:

Annex 4B.1: Vulnerability Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with customer and vulnerability experts for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Allocate additional resources and broaden our partnerships with communities and local organisations to support more people in situations of vulnerability

Stakeholders felt we should include working in partnerships with organisations. Several stakeholders pointed to the importance of working with local communities to better support vulnerable customers. 71% of customers agreed that we should support local community initiatives.

Help vulnerable customers through promoting energy efficiency, funding advice services and energy efficiency upgrades

Stakeholders said that it is our role to promote energy efficiency, funding advice services and energy efficiency upgrades. They also highlighted that using LCTs to mitigate against fuel poverty is essential and suggested that we should take a lead and help those who do not currently identify as being fuel poor to ensure they receive wider support. Stakeholders also mentioned that energy efficiency of homes can be used as an indicator of fuel poverty – if customers have low income but live in an energy efficient home, their energy bills are likely to be lower.

Offer more innovative and tailored assistance to vulnerable customers in a power cut, such as welfare support or provision of batteries to avoid supply interruptions

Stakeholders also suggested tailored support for vulnerable customers during power cuts which included welfare support (e.g. alternative accommodation, welfare packs), frequent and accurate communication. Stakeholders suggested to make collaboration and partnerships an integral part of fulfilling this commitment.

Play our role in making sure that everyone is afforded the same opportunities to benefit from the low carbon transition (such as financing the uptake of low carbon technologies and providing information on the opportunities and benefits)

Overall, stakeholders and customers shared the sentiment that ensuring vulnerable customers are not left behind in the low carbon energy transition is vital. They also highlighted that when developing vulnerability commitments, we should consider their customers' ability to pay. This is particularly relevant at present as communities recover from the economic impact of COVID-19. Stakeholders further mentioned a just transition needs to take into account the installation and consumption costs of some new low carbon technologies. These costs are currently seen as barriers in preventing vulnerable customers from participating in the low carbon transition.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our leaving no one behind plans will enable us to put proactive measures in place to support our vulnerable customers such as promoting energy efficiency, providing funding advice and energy efficiency upgrades and offering more innovative and tailored support.

We have 13 **detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

TP2	We recognise power outages as one of the highest customer priorities and will provide customers with improved support and response before, during and after either planned or unplanned occurrences with an enhanced approach for our most vulnerable and at-risk customers
TP4	We will re-define vulnerable and high-risk customers, and how we reach them, to better target and tailor the services we provide to these groups
TP5	We will deliver comprehensive support to our customers most in need throughout the energy transition in close partnership with social landlords, local authorities, and technology companies

Percentage of customers who support the commitments*	Household	Commercial
	83.10%	78.60%

Percentage of customers who are willing to pay, at least the RIIO-ED2 cost, for commitments in this topic area.	81.70%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.
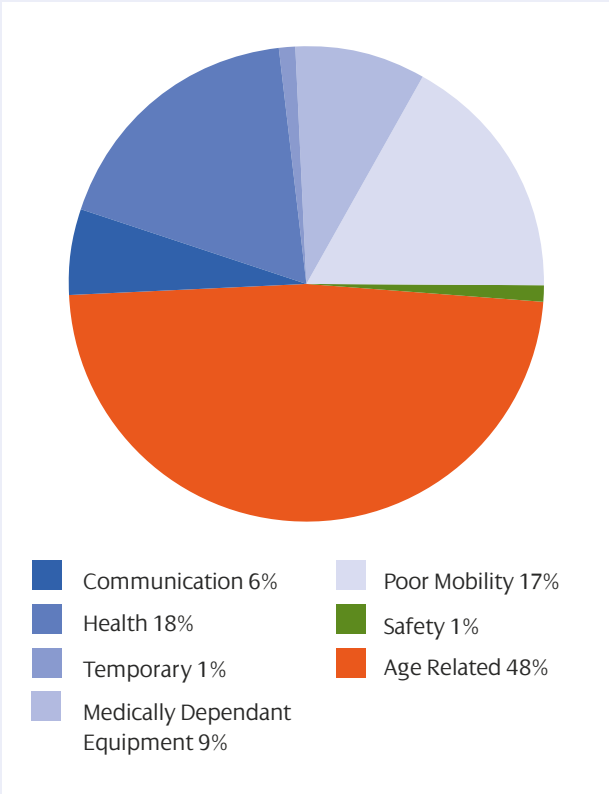
Defining vulnerability

Our Priority Services Register (PSR) records all of our vulnerable customers on one central system. This covers a wide range of vulnerabilities, from customers who rely on electricity to operate vital medical equipment (like oxygen concentrators or sleep apnoea masks), to customers with a long term disability or mobility need.

This size of this register has grown substantially over the course of RIIO-ED1. This is testament to the work we have done to better reach our customers and capture their needs, via direct contact with them or data shared across the utilities sector.

We also recognise that the very definition of vulnerability is changing. We need to consider wider societal needs such as customers in fuel poverty and customers who are digitally excluded and may struggle to successfully adapt to a modern, digitalised world. How we plan to tackle these challenges, and how we will use this data, forms a key part of our Vulnerability Strategy.

Our PSR – high level breakdown

- Communication 6%
- Health 18%
- Temporary 1%
- Medically Dependant Equipment 9%
- Poor Mobility 17%
- Safety 1%
- Age Related 48%

Reflecting on our approach to vulnerability

We are committed to enhancing all that we do to understand and support our vulnerable customers and have benchmarked and reflected on our approach across the six key areas of our Vulnerability Strategy.

1. Engagement

We benchmark our engagement with customers and stakeholders globally and audit our Stakeholder Engagement externally via AccountAbility to achieve the Stakeholder Engagement Standard A1000. By implementing their recommendations we have continuously improved over the last 4 years and currently sit in advanced level of the maturity ladder.

2. Data

To better understand our vulnerable customer data and gaps in our PSR, we benchmark ourselves against national data on all available PSR categories. Whilst not all customers wish to share their details with us, the more we close the gaps in our PSR the more we can support our customers.

We also looked for solutions where customers only need to register their details once and their data shared with multiple relevant data sharing partners. An example of this which we identified as best practice is the 'Tell Us Once' service which allows customers to register a bereavement once, enabling updates to multiple organisations as a result.

3. Services

Through our research and experience to date, we recognise many of the fuel poverty and wider support services are delivered in silos and require customers to interact with multiple organisations, duplicating effort and resources for all involved. We have found best practice initiatives are in the form of community cooperatives, where the initiative is owned and controlled by its members (which can be customers or trusted organisations representing customers), to meet a shared need.

Our research also highlights our customers need support in the transition to Net Zero. We have identified the barriers our vulnerable customers can face when accessing low carbon technology such as financial, knowledge and opportunity, therefore our future services need to address these.

4. Training

Throughout RIIO-ED1 we utilised recommended and accredited off the shelf Customer Service training. However through benchmarking with other utilities and vulnerability partners we recognised that to empower our staff to make a difference required the development of bespoke vulnerability training focusing on the specific needs of our customers. By working closely with vulnerability experts in a range of specialist fields and with vulnerable customers themselves to understand the impact of our services and how best to support them.

5. Partnerships

In line with our research and experience on fuel poverty and wider support services, we find that efforts and resources are in most cases duplicated by the organisations delivering these services. Also customers are often unaware of their existence and the benefits they bring. In cases of best practice such as community cooperatives, the collaboration of partnering organisations results in reduced effort and resources, with a more proactive holistic approach.

6. Measurement

Ultimately the value we deliver to our customers is what makes the difference, so it is vital this is consistently measured across the industry. Along with WPD we led a review of how a common approach to measuring social value could be established and with stakeholders, DNO's and Ofgem's expectations, a framework was designed around three guiding principles; 1. Consistent, 2. Comparable, 3. Conservative.

Understanding future vulnerability trends

Whilst we have reflected on our current approach to vulnerability, its very definition is evolving in society and we recognise we must be on the front foot to support all of our vulnerable customers. To inform our actions and focus our outcomes, we commissioned a study on the future vulnerability trends to understand their impact on our approach to vulnerability and to inform our customer and stakeholder engagement. The study identified three industry trends and six socio-economic trends which have been considered in the formation of our strategy.

Industry trends

Adopting new technologies & behaviours	Some customers may face barriers in their ability to adopt new technologies.
The increasing complexity of information	Those with multiple needs and the increased complexity of the landscape means some customers may need extra help so ensure they are not disadvantaged.
Digitalisation of Communication	Customers may be unable to access the benefits of the transition if they are unable to adopt new technologies and the reduction in personal interactions due to digitalisation may mean customers are negatively impacted if support isn't provided.

Socio economic trends

Ageing population	Due to increased life expectancy an increase is expected in PSR registrations under the 'Pensionable Age' code. As well as a higher demand for PSR services and a higher share of vulnerability situations per customer.
Inability to engage with the energy market	The UK's energy market is characterised by very uneven levels of understanding and participation from different demographic groups which might increase with accelerated digitalisation of communication.
More disabled young people	Improved diagnosis and better survival rates will likely cause an increase in the number of young people with disabilities. This may lead to an increase in PSR registration volumes, and 'Priority 1' codes registrations along with the 'Families with children under five' category.
More homes, smaller households and dispersed families	The average number of people per household is expected to decrease which is likely to have a double effect on our consumer vulnerability approach; (1) increase in households registered in the PSR database and (2) vulnerable customers requiring additional support due to the lack of support from families and close neighbours.
Financial uncertainty and poverty	Fuel Poverty is set to increase as a result of a rise in poverty caused by financial uncertainty and slow economic growth further impacted by Covid-19.
More private renters	Although the rising trend of private renters is unlikely to directly impact the PSR codes, the decreasing average length of stay in properties will put pressure on the PSR data quality.

The challenges that we must address

The energy transition will bring opportunities for many in terms of reduced costs, benefits to the environment and improvements in health and employment opportunities. However, some will face barriers to accessing these benefits and are therefore disadvantaged.

Some customers may face challenges in communicating in a more self-serve digitalised way and without personal and tailored support will be left behind and unable to access the benefits available to wider society.

We are aware that there are different levels of understanding, engagement and interest in energy across customer groups; attitude to energy can also be a barrier. We must therefore consider our approach to education and awareness in our RIIO-ED2 plan.

Increases in certain vulnerability groups are forecast, including 1) elderly people due to an increase in life expectancy and 2) young disabled people due to better diagnosis and treatment of serious illnesses. This means there will be more support needed from us in circumstances such as power cuts.

Whilst traditionally power cuts have impacted narrow aspects of people's lives, the transition to Net Zero means the impact will be felt in all aspects of life, with more customers relying on technology to go about their daily lives, particularly for transport, heat and devices to manage medical conditions.

The makeup of households are changing with more dispersed families and social isolation which in itself brings greater demands on services such as the NHS and support organisations. This linked with the decrease in household tenure means that there is a greater importance to maintain a close relationship with customers to ensure we understand changes in circumstances, keep our systems updated and can support in the right way at the right time.

The increase in poverty alongside general financial uncertainty further impacted by Covid-19 means some customers need more financial support. Whilst fuel poverty is decreasing due to the measures taken to improve energy efficiency in homes, this is not the case when costs for new low carbon technologies are taken into account and this will be a barrier for some in accessing the benefits of the future landscape.

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Focused on the right long-term outcomes

In creating our strategy we have asked ourselves what difference we are trying to make. Our overarching outcomes define the change that will happen as a result of our actions.

We have set ourselves a long term goals to be agents of change developing new ways of working to enable direct benefits to be delivered to our customers ensuring fairness and equal access as we transition to Net Zero.

Long Term Outcome 1

By 2045 we will deliver direct benefits to all Fuel Poor customers, removing barriers and reducing costs

23%   **45**%   **68**%   **90**%   **100**%

2028   2033   2038   2043   2045

Improvements in Energy Efficiency Ratings planned up to 2035 will reduce Fuel Poverty across all UK nations. However that will still leave 19% of households in SPD and 16% in SPM in Fuel Poverty when using a common definition. This equates to 620,000 households across our two licence areas.

Long Term Outcome 2

By 2033, 90% of customers will be proactively served, receiving service tailored to their preferences and needs

Vulnerable customers in a powercut → Available to all customers in a powercut → 90% of all services proactive

RIIO-ED1   RIIO-ED2   RIIO-ED3

Reducing customer effort, and understanding what is important to our customers, will be the cornerstone of our strategy. Our long-term aim is to proactively deal with issues before they arise, reducing effort for our customers.

Long Term Outcome 3

By 2045 customers will receive £287m in benefits as a result of our single point of contact collaborate working

Value delivered to customers

Benefits (£m's): y-axis 0–350

2028   2045

By continuously expanding and refining our partnership coalition model customers will be able to access ever evolving services across organisations. This model will deliver services proactively and will continuously increase value whilst reducing duplication of effort.

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Our strategy

Customers in vulnerable situations need to be supported in ways that best fit their unique circumstances.

In setting our strategy we considered the ways in which we may cause customers increased detriment through situations such as power cuts and, as we transition to a low carbon future, we took steps to understand the new barriers customers may face ensuring our services aim to overcome any disadvantage customers have in accessing the benefits of this technology.

We are therefore committing to an ambitious set of actions through RIIO-ED2 to reach all those who need support, deliver services that take into account the challenges our customers tell us they have and consider future trends which continuously evolve the definition of vulnerability. Underpinning our plan is the drive to work collaboratively with many organisations through a coalition of partnerships, making the service we are able to offer our customers much broader, transforming the way vulnerable customers are supported.

Whilst the long term outcomes provide a high level view of our ambition, we have also defined the focus areas around which our commitments are formed.

These trends are summarised into 3 areas around which our actions are shaped

Reaching all customers who need support and going beyond traditional needs	**1**

High quality data and processes to ensure we are able to deliver effective services	**2**

Delivering Services to customers to remove barriers and tackle current issues and future trends	**3**

Underpinning our actions in these three areas we will simplify the complex energy landscape through outreach, awareness and education and use customer segmentation to tailor our communication.

Our ambition at a glance

As with everything we do, we have worked with our customers and stakeholders to develop and refine our detailed vulnerability commitments. These outline the actions we will take and the service levels we will achieve and ultimately lead to us delivering on our long term outcomes and our mission statement for customers.

Highlights from our commitments are shown below and full details can be found in Annex 4B.1: Vulnerability Strategy.

Broad view of vulnerability

Reach all customers who need support when compared to national data & take a broad view of vulnerability beyond common needs codes

Meaningful collaboration

Move our partnership model to be proactive by creating a coalition of organisations who focus on joined up tailored support

Improving data across multiple organisations

Good quality validated customer data with rich information gathered from customers on needs, attitudes, preferences, technology & impact

Shared register

Shared vulnerability register making it easy to register with one organisation and helping other organisations improve their data

Direct targeted action

Delivering services to save money, hand hold customers through the landscape of LCT & deliver broad social help

Direct LCT vulnerable support (CVP)

We are proposing a Consumer Value Proposition (CVP) to directly fund technology solutions that will ensure vulnerable customers are not left behind in the energy transition. Our CVP has two elements:
1. Funding technology to reduce energy demand for 40,000 of our most disadvantaged customers, with an average bill saving of £100 per year
2. Increasing the uptake of smart meters across harder to reach customer groups

Underpinned by awareness and education

The scale of our ambition – our commitments in detail

Reaching all customers who need support and going beyond traditional needs   1

Using nationally available data, we will benchmark our existing Priority Services Register (PSR) coverage against each of the common needs codes to identify specific codes, geographies, demographics where there is lower coverage, and focus our engagement efforts in these areas.

We also recognise that not all customers want to join our PSR even when eligible to do so, but we believe it is important that we set ambitious targets to reach all those who require support. That's why we are making a commitment to achieve a minimum of 80% coverage in every PSR needs code.

Furthermore, we understand that the traditional view of vulnerability is evolving in line with the changing energy landscape and vulnerability reaches far wider than the standard industry needs codes. That's why we are committed to not only increasing the coverage of our PSR, but will also capture wider forms of vulnerability including: Digitally excluded customers, and customers with few or no qualifications who our engagement shows would welcome additional support, particularly in the area of communication; as well as, those in, or at greatest risk of fuel poverty, those who are at greatest risk of being left behind in the move to Net Zero and our customer attitudinal segmentation.

Whilst focusing on broadening the scope of vulnerability, we also recognise the need for greater collaboration across all organisations who could provide support to vulnerable customers. That's why we are committing to lead a coalition partnership model facilitating organisations working collaboratively, sharing data, sharing resources and sharing services so that whichever organisation a customer makes initial contact with they will have the option to choose which other organisations they would like to receive services from.

This wider view of our customers, combined with the work we are doing to establish our coalition of partners, will ensure we are best placed to identify, and deliver a wider range of services and support to our customers than ever before.

Our commitments – reaching all customers:

We will transition our partnership model to be proactive by creating a coalition of organisations with shared goals and data sharing governance to deliver holistic and efficient support.

We will lead the creation of a single vulnerability register, which our PSR will be part of, linking the organisations in our coalition partnership model. This "Register Once" service will make it easy for customers to register for vulnerability services with multiple organisations.

We will register 80% of customers across every common needs code for PSR registration by 2028 based on nationally available data.

We will broaden our view of vulnerability, capturing needs broader than common utility codes, building these into our service offerings and coalition partnership model.

High quality data and processes to ensure we are able to deliver effective services   2

Capturing a wider range of data than ever before is a key enabler in ensuring we can offer the widest possible tailored support to our customers. But equally important is to ensure that we maintain the quality of such data.

We will look to embrace digital solutions to make it easy for customers to update their details as well as maximise information flows between organisations to ensure the customer details we hold are as up to date as possible. Where data reaches a certain age without being verified by either of these methods we will look to validate this data via a variety of means including through all front line operational processes in every interaction we have with customers, via a customer portal where customers can update their own records, via a dedicated customer data line where customers who prefer to speak to us can contact us directly and by maximising the shared data from our coalition partners.

We'll also look to harness the power of the data available to us to allow easy identification of those customers who need the most support in the adoption of Low Carbon Technologies. By utilising data science techniques and technologies we can process large volumes of data enabling us to quickly establish which customers would benefit most from our support.

We also recognise that the quality of service we offer our customers is a key differentiator, and whilst we will continue to commit to delivering exceptional customer satisfaction as outlined in our Customer Service Strategy, we will also look to benchmark our services externally every year to make sure we take every available opportunity to identify ways we can improve. Therefore we will:

- Achieve the BSI Kite Mark Standard annually

- Maintain accreditation to BS 18477: 2010 Inclusive service provision – identifying and responding to customers vulnerability in relation to electricity distribution

- Maintain BS 8477: 2014 and ISO 10002:2014 Customer Service and Complaints Management.

We will also conduct benchmarking with the Institute of Customer Services and aim to achieve at least equivalent to top 5 ranking or higher each year.

Our commitments – high quality data & processes:

We will benchmark our service externally every year to measure up against best practice, achieving relevant recognised international standards and score in Top 5 UK companies through ICS service benchmark.

We will contact 100% of all our vulnerable customers every 2 years, achieving a minimum 60% fully validated data.

We will use data creatively to understand those customers likely to face barriers in accessing Low Carbon Technology (LCT) due to social factors & overlay this with technology data creating an LCT prioritisation ranking to enable us to best target our services.

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Delivering services to customers to remove barriers and tackle current issues and future trends

3

Accurate data and high quality processes are the foundations of our strategy, and give us the launchpad to be able to support more customers than we've ever done. This will include continued support during a powercut, or any other interaction with us, but also proactive development of services that will bring direct benefit to customers.

We will work to ensure that customers registered on our PSR receive a first class service during times they require it most, be that during a supply interruption or when requesting work from us. However a key part of our strategy is not only servicing their traditional needs, but also providing a level of support for key issues that goes way above anything we have done previously.

Fuel poverty

We estimate that in our licence areas, 620,000 households are currently living in fuel poverty and we want to help make a positive difference to as many of these customers as possible. We recognise that there are 3 main contributing factors to households being in fuel poverty:

1. The cost people pay for energy
2. The household income
3. The energy efficiency of their home

We also recognise that this view of fuel poverty will change as we move towards decarbonisation and the adoption of LCT's, so this is also factored into our strategy for how we will support those in, or at risk of, fuel poverty.

We are committing to help every fuel poor customer in our network areas by 2045, and in RIIO-ED2 will provide direct support to 40,000 fuel poor customers. The support we provide will be tailored to the specific needs of each customer, but will include tariff switching support, advice on energy efficiency measures, income maximisation support and debt advice.

Supporting Disadvantaged Customers – CVP

In addition to the specific measures outlined above to help customers tackle fuel poverty, we are also committing to supporting a further 40,000 disadvantaged customers, many of whom will be fuel poor, through the installation of innovative technological solutions aimed at reducing their energy bills. Our aim is to implement solutions that will deliver at least £100 per year of savings to the customer's energy bills.

LCT Transition

We are also committed to ensuring that no customers are left behind in the energy system transition, and as a result we will support customers to access Low Carbon Technologies and the benefits they deliver. We will conduct a prioritisation assessment of all our customers, and look to prioritise 40,000 of those who face the greatest barriers and who otherwise would not be able to access these technologies. This support will take many forms, but will include: education & awareness on new technologies, what benefits these bring and help accessing grants and funding.

Wider support services

We have outlined our intentions to provide dedicated support to customers in or at risk of fuel poverty, those who are disadvantaged and those most likely to be left behind by the energy system transition. We will also continue to provide wider support services such as dementia support, fire safety support visits and befriending services. We will provide support to 20,000 customers over RIIO-ED2. We will also ensure these are delivered in a cost effective manner through ensuring we have sufficient coverage within our partnership coalition.

Smart metering

Whilst the UK Smart Metering rollout is the responsibility of energy suppliers, our extensive engagement with customers highlighted the specific barriers to uptake of the meters which included: being unclear of the benefits they will deliver, concern over accuracy of bills, belief that bills will increase and problems switching suppliers.

We are proposing to put in place a dedicated team to work with customers to help them overcome these barriers through a program of education and support and are targeting providing this support to 132,000 customers over the course of RIIO-ED2.

Support services at a glance

In summary, the support services we are planning to provide in RIIO-ED2 are more comprehensive and will be delivered to more customers than ever before.

Service area	No. of customers	Gross Benefits
Fuel poverty	40,000	£28m
Disadvantaged customers (CVP)	40,000	£18m
LCT advice	40,000	£10m
Wider social support	20,000	£3.5m
Smart metering (CVP)	132,000	£3m
	272,000	£62.5m

In RIIO-ED1 we provided support services to 5000 customers p.a. awareness and outreach to 800,000 customers p.a. and powercut & communication support to 1,500,000 customers p.a.

Our commitments – delivering services:

We will support customers in a number of ways during a power cut and capture their individual needs through our contact channels with no less than 99% of needs being met.

We will deliver direct support services to 272,000 vulnerable and disadvantaged customers.

Our approach – exceeding Ofgem's baseline expectations

Our vulnerability approach incorporates our stakeholder tested Vulnerability Strategy and the baseline expectations that Ofgem have defined for vulnerability in RIIO-ED2. While full details are included with our Vulnerability Strategy, the following diagram summarises the individual elements of our plan and demonstrates our ambition against the baseline expectation outlined by Ofgem.

Effectively support consumers in vulnerable situations

1. Advertise PSR and services offered to vulnerable customers

2. Data and information strategy

3. Communicate in the formats suited to communication needs

4. Dedicated PSR Lines

5. Tailored supply interruption support

Maximise opportunities to identify and deliver support to consumers in vulnerable situations

6. Use social indicator or vulnerability mapping to inform service development and partnership approach

7. Understanding of social issues associated with scope and role

Understand new forms of vulnerability

8. Extensive network of partnerships

9. Use referral channels and signpost support

10. Involved in two-way flow partnerships supporting vulnerable customers

11. Process for identifying the most effective partnerships

Embed protecting consumers in vulnerable Situations throughout a company's operations

12. Seek opportunities to protect vulnerable customers throughout their capabilities

13. Process for embedding commitments to protecting vulnerable customers within company culture

Legend:
- Exceeding Baseline
- Baseline expectation
- Below Baseline
- At Baseline
- Ambition against specific expectation
- Substantially exceeding Baseline

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4B.3: Work with our communities to enable the energy system transition

Community energy schemes are essential to a just Net Zero transition. They are also fundamental to local economies and the post Covid-19 goal to 'build back better'. In committing to support community energy, we can play our part in increasing local benefits while also maximising how we use and operate our networks. This means energy bill savings – not just for those communities directly involved in local schemes, but for all bill payers within our license areas.

Our RIIO-ED2 foundations

We know community energy has an essential role to play. During the course of RIIO-ED1 we've put in place a number of measures and services specifically designed to help community groups take forward their local energy projects (see Annex 4B.3: Community Energy Strategy). We are also joining in strategic conversations that support new thinking when it comes to local energy solutions and have recently backed the objective of the Local Electricity Bill and recently signed Community Energy England's joint letter in support of the Environmental Audit Committee's recent letter to Government, *Removing the barriers to the development of community energy.*

To further develop our understandings of the opportunities available to our communities and better tailor our help towards them, we commissioned WPI Economics to undertake a review of *The Future of Community Energy*. The report identified a clear opportunity to develop a new national strategy to stimulate a community energy revolution across the UK.

It also outlines that a potential increase in the number of community energy organisations to around 4,000 (up from several hundred today) would position the community sector as a key contributor to the UK's overall Net Zero targets by:

- saving as much as 2.5m tonnes of carbon emissions per year by 2030.

- providing renewable energy to power 2.2m homes with renewable energy by 2030 and reduce household energy bills by up to £150m;

- potentially creating over 8,000 new jobs and providing a possible £1.8 billion boost to local economies

Our RIIO-ED1 highlights:

Today there are 69 operational and in-development community energy projects across our licence areas.

We have established a number of partnership projects and collaborations with local energy communities, exploring how we as a future DSO can support and interact with local energy communities

We have launched our online Zero Carbon Communities Hub providing free techincal advice and funding information, case studies and signposting for communities across GB.

RIIO-ED2 changes

Despite the more supportive policy environment of the devolved administrations, the WPI report warns that a lack of stability at UK policy level and changes to support mechanisms, such as the closure of the Feed-in Tariff, has led to a significant fall in the growth rate of community energy projects over the last few years.

Given the criticality of the climate emergency we want to help our varied communities across England, Scotland and Wales to embrace their low energy solutions in a way that makes sense for local needs and local network conditions. In doing, we aim to leverage our central role in the energy system to reduce carbon emissions and cost-effectively maximise benefits for local economies as well as our most vulnerable consumers. By being proactive in this area we aim to meet the increasingly localised needs of our customers, communities and networks and use our RIIO-ED2 investment plans to further facilitate a just transition.

In this section, you will read about:

- What our customers and stakeholders have told us is important to them.

- What community energy is and why it is so essential to how we manage our networks for a just, Net Zero transition.

- Our community energy proposals to increase the number of community energy projects over ED2 and our two-step approach to funding them.

- Our proposed distribution Net Zero Fund and our plans to ring-fence some of this fund for community energy groups.

You can find more detail in:

Annex 4B.3: Community Energy Strategy

Annex 5C.7: UIOLI / Clawback Allowances

Annex 2.1: Stakeholder Engagement Annex

Annex 4B.4: Distribution Net Zero Fund

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we also commissioned an independent report and formally contracted Community Energy England, Community Energy Scotland and Community Energy Wales to help advise and challenge our plans in addition to our wider engagement programme and district-level activities. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Collaborate with communities and trusted support organisations to quickly and strategically facilitate community energy ambitions

Stakeholders stressed that the company's stakeholder-led Community Energy Strategy should involve collaboration with the private sector, Scottish Government and different industries to avoid "sounding in a vacuum".

Provide tailored local energy advice and education – that is linked to our network data – and reduce barriers through funding

Stakeholders generally agreed that we should provide education and advice to the public, including shared learning from successful community energy projects. Stakeholders want "deeply rooted" local energy education programmes, for consistent messaging and improved collaboration. Stakeholders advised us to be more ambitious in our education provision by helping to address the skills gap in community groups as well as the knowledge gap.

Use our central role in the energy system, and work with local support organisations, to establish how best to efficiently spread awareness on community energy opportunities and benefits

92% of surveyed agreed that network operators like we should be playing a role in supporting Community Energy as we have the knowledge, resources and infrastructure to play a central role in the set up and delivery of community energy.

Work in partnership with industry stakeholders such as local authorities and aggregators to share learning and opportunities and link in with local energy planning

Stakeholders commented that, we should engage with local authorities, community energy organisations, other utilities and organisations such as Citizens Advice and the Energy Trust, some of which may be better placed to connect with communities. Stakeholders also stressed the importance of collaborating with other organisations, especially local authorities and charities to achieve more meaningful outcomes.

Establishing a Distribution Net Zero Fund to make projects viable

Stakeholders called for clear, flexible funding with a simple application process, and some suggested that the fund should take into account local energy plans, as well as feasibility and capital. There were also calls to raise our ambition by separating funding for community projects and larger-scale projects whilst creating a BAU community energy model.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our community energy proposals have been designed to allow us to cost-effectively leverage our role in the energy system. We will work closely with existing support organisations so as not to duplicate efforts (and costs) of existing bodies operating in the sector. We will review the impact of our activities annually and encourage challenge from representative groups.

We have **7 detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

TP7 We will help our customers and local communities understand the energy landscape, and the facts and opportunities of the energy transition through a tailored awareness campaign

TP8 We will support our communities develop their community energy ambitions through strategic planning and partnership working and the provision of technical advice, optioneering and sign-posting

TP9 We will create a £30m Distribution Net Zero Fund to facilitate low-carbon projects, aligned to Scotland, Wales and the UK's Net Zero aims, whilst supporting our cities, towns and local communities' ambitions

Percentage of customers who support the commitments*	*Household*	*Commercial*
	83.80%	**76.90%**

Percentage of customer who are willing to pay, at least the ED2 cost, for commitments in this topic area.	**81.20%**

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.
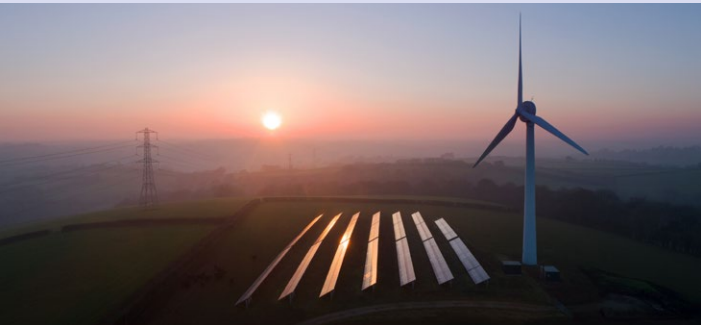
Community Energy – *what is it and why is it so important?*

Defining community energy

Community energy refers to the delivery of community-led renewable energy, energy demand reduction and energy supply projects, whether wholly owned and/or controlled by communities or through partnership with commercial or public sector partners (Community Energy England). Community energy projects can include the local generation of renewable power or heat, the collective purchasing or peer-to-peer trading of energy, energy efficiency improvements or low carbon community transport and EV charging (The Environmental Audit Committee).

With democratic control, shared benefits and active participation at its core, community energy supports the major shifts in culture and infrastructure needed to reduce the impact of climate change and increase security of local energy supply (Community Energy England).

Why is community energy so essential?

Reliance on renewable energy sources is growing and we are increasingly aware of the intermittent nature of their energy supply. Coupled with this, energy usage patterns are changing with the increase of technologies such as EVs and heat pumps. As a DNO we leverage innovations and technical solutions such as smart grid monitoring and flexibility services to help manage the imbalances that may occur between supply and demand in a cost-efficient manner. To date, most progress on flexibility has been made in industrial sectors–individuals and their communities in the domestic sector have remained virtually untouched.

With the increasing urgency to achieve Net Zero and deliver a Just Transition, it is vital we now further encourage householders to take part in measures that enable flexible solutions. Community-led energy initiatives have been shown to be a particularly effective way to do this.

At the same time, mitigating the climate emergency will also require fundamental changes in how individuals and their local communities use electricity in their day-to-day lives and interact with network operators and energy suppliers. To use energy as efficiently as possible will likely mean adopting more 'smart' devices in our own homes, increasing our use of personal or shared electric transport solutions, and generating electricity to be used on-site or traded locally. These behavioural changes can take time and are not without cost. They require individual and local knowledge and support from trusted organisations embedded in our communities.

Investment in community energy is essential to the green recovery

The recent Covid-19 pandemic highlights the need to strengthen community resilience and local economies. As well as increasing our ability to facilitate Net Zero, strategic support for community energy in RIIO-ED2 supports a Just Transition through regional jobs, skill development and green economic growth.

To ensure that truly, no one is left behind, it is vital that we use our central position within the energy sector to cost-effectively raise awareness and educate our customers and stakeholders about what lies ahead in the transition to Net Zero and how they can engage with and benefit from it.

Our aim is to apply learning from RIIO-ED1 to increase the number of community energy projects across our licence areas in RIIO-ED2

To make a just Net Zero a reality, we will take valuable learning from pioneering communities third sector organisations to help deliver more community energy projects throughout RIIO-ED2. Before 2015, most community energy projects were centered around electricity generation and biomass fueled heat systems, but there has been a clear shift in the past few years to projects focused on transport and heat electrification.

Transport projects include EV car clubs, EV charging, community transport schemes, and e-bikes, and although biomass remains popular, heat projects have seen an increase in the deployment of heat pumps, as well as energy efficiency and auditing activities. We're also starting to see an increase in more innovative community-led demand-side projects covering a host of areas, including:

- Flexibility
- Aggregation
- Collective switching
- Prosumption (groups who produce and consume energy)
- Capacity-building

We recognise the need to develop a strong degree of trust, consent and collaborative partnerships for the successful delivery of local energy solutions. Local knowledge and sensitivity continue to play a vital role. It is also vital that projects are managed and communicated well so as not to result in negative experiences or connotations that may risk setting back or preventing future uptake of low carbon technology.

We are proud to have been building links and relationships with community support organisations and local delivery groups through years of engagement activity and project delivery. We also benefit from shaping business around geographical districts across both our licence areas so that staff are close to the communities they serve, and communities can influence the delivery of projects in their area.

Beyond the communities themselves, we also understand the importance of building on our long-standing relationships with private, third-sector, academic and industry partners to create the varied technological solutions and business models needed to match local needs with local network conditions. We also intend to keep participating in policy and regulatory discussions that ensure a just energy transition and work with the ENA to help simplify the support available to communities no matter where they are in GB.

We have contracted Community Energy England, Community Energy Scotland and Community Energy Wales to advise and challenge our Strategy.

Our community energy proposals for RIIO-ED2

When it comes to facilitating more community energy projects, our customers and stakeholders have told us there is no time to waste. That's why we've designed our proposals so they can cost-effectively support a minimum annual growth rate of projects (based on activities that we have more direct control over) but also be increased to meet any flux in demand (via our Output Deliver Incentive proposal) particularly if there are further positive policy or regulatory mechanisms developed for the community sector during ED2.

Our two-step approach

Community Energy is critical to ensuring we achieve Net Zero and a just transition however, given the current pace of change, it has not yet been formally considered as a core area of activity for DNOs. As such, Ofgem have not yet issued specific guidance on how we should operate in this area or draw down funding for our activities.

Given the urgency to act, we have proposed the commitments below to help address barriers facing community groups that relate to our role as a network operator. These commitments are designed to maximise local opportunities for all of our customers and stakeholders, including aggregators and developers who will need to support community groups, and increase the number of community energy projects across our licence areas. Importantly, they allow us to use our networks more resourcefully and deliver further bill efficiencies as well as environmental and green recovery benefits.

Through baseline funding, we propose to support a minimum annual growth rate of community energy projects of 4-8% across SPD and SPM. We have also suggested an Output Delivery Incentive funding framework that we and our stakeholders feel will best allow us to facilitate an annual growth rate of 10-27% by applying additional resource to our proposed commitments.

Delivering more with our proposed Output Delivery Incentive

Changes in the external environment out with our direct control – like regulatory support, new policies and rising appetite from community groups – could see the sector flourish over ED2. This could mean higher rates of growth of 10-27%, like those that existed prior to 2018, when support such as FITs were still in place.

Given our role as network operator, we will play a crucial role in facilitating increased demand for community energy projects, and need to do so in a timely and supportive way. We are proposing a new Community Energy ODI to allow us to cost-effectively apply additional resource and activities to the commitments outlined so that we can help even more more community energy projects and increase benefits for our customers, stakeholders and wider society.

The proposed bespoke ODI is a discretionary, reward only, ODI of up to 0.25% of base revenue. It will be assessed once mid-period and again at the end of ED2. The ODI is structured around: (i) qualitative evidence; (ii) quantitative metrics; and (iii) evidence of CE strategy delivery in the form of an annual review.

Our commitments for community energy

Zero Carbon Communities (ZCC) – Community Energy Strategy

Alongside our ED2 business plan, we will develop a stakeholder-led community energy strategy with not-for-profit, sister organisations Community Energy Scotland, Community Energy England and Community Energy Wales.

Our strategy will set out publicly how we intend to ensure a cost-effective approach to leveraging the resources we have across our business to partner with and support individuals and their local community groups toward a more efficient and low carbon energy system. It will be reviewed every year to make sure we are learning as we go and adjusting to any changes in the external environment.

Through this strategy we will internally embed the role for domestic and community level low carbon technology solutions in our investment and planning decisions as well as our RIIO-ED2 delivery activities. For example – using digital tools to support community groups to contribute to our annual distribution future energy scenarios data so we can more accurately plan for community energy over ED2 and beyond.

ZCC – awareness raising and educational outreach

We will deliver community energy campaigns similar to those we already do for our health and safety messaging at scale to raise awareness of the changes coming to the energy sector and how individuals and their communities can participate in local energy schemes.

We will work alongside local delivery partners to delivery community energy outreach events such as *Community Energy Futures* that go beyond high-level discussions into the step-by-step aspects of how to develop a locally tailored community energy schemes. We will review methods and success of our engagement, including who/how best to deliver information, throughout RIIO-ED2 and remain flexible and innovative in approach.

ZCC – technical advice, optioneering and signposting

We will also link in with wider area activities such as local energy, planning initiative that we will have sight of, given our central role in the energy system.

We will seek to offer extra hand-holding support to individuals and their local communities who wish to explore low carbon technology activities and community energy schemes in their local area.

We will provide early technical advice and optioneering services and sign-posting to impartial support organisations.

Ring-fencing c. 25% of our proposed Distribution Net Zero Fund.

We are committing to ring-fencing roughly 25% of our proposed Distribution Net Zero Fund for community energy projects. Community groups will still be able access other categories of the fund. More details in the section below.

You can find full details of our community energy strategy and funding framework proposal in Annex 4B.3: Community Energy Strategy and 5C.7: UIOLI / Clawback Allowances respectively.

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Our proposed Distribution Net Zero Fund

With growing momentum in the race to Net Zero, as a network provider we understand that we have a critical role to play – and crucially, we want to be part of a fair and just transition for all our customers and communities. Network companies are a key enabler in the Net Zero transition by ensuring that our network investment can match ambitions, through facilitating low carbon projects, bring benefits to our society and our electricity system as a whole. We are therefore proposing a Distribution Net Zero Fund to facilitate low-carbon projects within our licence areas.

This section details our plans and proposals associated with the following commitment:

For RIIO- ED2, we will look to create a £30m Distribution Net Zero Fund which will facilitate low-carbon projects within our licence areas. This fund will support projects across three of the UK's largest cities (Liverpool, Glasgow and Edinburgh) as well as three significant rural areas (North Wales, Scottish Borders and Dumfries & Galloway). The fund will leverage the learning of and build upon the success of the SP Transmission Green Economy Fund which has a proven track record for delivering demonstrable environmental, economic and societal benefits.

Our proposed Distribution Net Zero Fund goes beyond just supporting our Community Energy Strategy, making sure that the funds can be accessed by all of the town's, cities and local authorities we serve. It aligns to our ED2 strategy, enabling a fair and Just Transition to ensure that no one is left behind as we progress towards a greener society.

Building on the success of the Transmission Green Economy Fund

In RIIO-T1, the Green Economy Fund was established by SP Transmission. The £20m fund was created in 2018 to support the Scottish Government's ambitious energy strategy and the UK's drive to a low-carbon economy.

In just over two years, the fund has supported 35 innovative projects, 55 full-time jobs (with another 341 jobs created indirectly), saved 279 tCO$_2$e per annum of carbon, facilitated 1,061 sessions to help educate communities on green energy and engaged with over 7,628 customers about energy issues. The fund has delivered positive environmental impacts, supporting the most vulnerable in our society and boosted local economic growth. The fund has made an incredible impact within our local communities, leaving an enduring legacy for years to come. (As our transmission business only operates within Central and Southern Scotland, we were only able to support Scottish based projects).

Our drive to support Net Zero

We are therefore proposing the establishment of a fund for Ofgem to consider. This is a new ambitious activity for a Distribution Network Operator to undertake, it is also something that our stakeholders fundamentally believe that we are best placed to deliver given our unique knowledge of the regional energy infrastructure, including constraints and anticipated demand, and understanding of what is required to achieve Net Zero. The fund also complements several of our business strategies, in particular, ensuring a just transition, a whole system approach (Annex 4A.26), our community energy (Annex 4B.3) and vulnerability (Annex 4B.1) strategies.

In RIIO-ED2 we are committing to:

TP9 We will create a £30m Distribution Net Zero Fund to facilitate low-carbon projects, aligned to Scotland, Wales and the UK's Net Zero aims, whilst supporting our cities, towns and local communities' ambitions.

Examples of Transmission Green Economy Fund Projects

Warmworks, Dumfries,
Installation of domestic battery storage to social housing in off-gas network in Dumfries.

Saughton Park, Edinburgh,
Installation of micro-hydro scheme, making it the UK's first fully eco-powered greenspace.

Dumfries & Galloway College,
Green energy hub created with the inclusion of low-carbon technologies to be used as teaching aids.

You can find more information on these case studies at www.spenergynetworks.co.uk/GEF

The fund will focus on facilitating practical low carbon initiatives with tangible outcomes that will drive the green agenda, enabling low-carbon projects to proceed that can often find funding difficult to obtain. We are determined that the fund will primarily remove barriers that prevent our cities and communities participating in a low-carbon society. We will be able to support job creation, boosting the green economy, whilst removing the financial and knowledge barriers that typically exist for the introduction low carbon technology, particularly for the most vulnerable in our society – helping ensure a Just Transition.

Why is a fund needed?

We are in a unique position to help enable the pace of change needed, given our central role in the energy sector, position within our cities and local communities and our ability to distribute benefits through socialising any resultant innovation, learnings and consumer bill savings.

According to stakeholders, the biggest barrier is the lack of available funding options, suggesting there is nowhere near enough funding available to help communities develop their low-carbon project ideas. Where the funding does exist, there is often a lack of awareness around who is eligible to apply, confusion around where to find it, and complex application processes.

We have carried out extensive engagement with 1,200 stakeholders across Scotland, England and Wales with **97% of stakeholders**, agreeing that a "Low Carbon" pot of funding, like the Transmission Green Economy Fund, should exist in the RIIO-ED2 price control. We have also presented our proposals to our Customer Engagement Group and received their guidance and feedback on what we should consider and include when creating the fund.

Responding to our stakeholders and removing barriers to funding

The stakeholder feedback that we received regarding the Net Zero Fund has been used to refine the criteria, priorities and structure of the fund. The full details of the Net Zero Fund are outlined in Annex 4B.4: Distribution Net Zero Fund. We are proposing that this fund should be a Use it or Lose it (UIOLI) fund. With this approach Ofgem would access our NZF expenditure at the end of RIIO-ED2 and determine if any should be clawed back and returned to customers together with any unused allowance. The full details of the UIOLI mechanism can be found within Annex 5C.7: UIOLI / Clawback Allowances.

In direct response to stakeholder feedback, we will:

Align to local Net Zero priorities – through our research of local energy plans we identified a number of consistent themes which also aligns with the stakeholder feedback that we received. This has highlighted a number of themes that the fund should support: Transport, Heat, Communities and other low-carbon projects (including education projects).

Allocate funding across Net Zero themes – stakeholders and our Customer Engagement Group also indicated that they would like to see the fund split into separate funding pots and for that reason the fund will be allocated to each of these themes.

Make the fund straightforward and accessible – many of our stakeholders made comment that often they were not able to secure funding due to the size or type of organisation. Therefore, the fund will be open to different types of organisations and only exclude individuals from making an application. The fund will be able to offer not only capital project funding but also support capacity, knowledge and feasibility costs.

Connect the dots with a whole system and partnership approach – several stakeholders stressed the importance of collaboration and partnerships, particularly with local authorities and the government.

Empower communities and support the vulnerable – support those who are most vulnerable in our society and make sure they are not left behind through the low-carbon transition. There were also calls for us to raise our ambition by separating funding for community projects and larger-scale projects, as well as creating a business-as-usual community energy model. It is anticipated that a quarter of the funding pot will be reserved especially for community energy projects.

Be flexible and simple – stakeholders informed us that the fund should operate a clear and simple application process and be flexible in its funding approach. We also received praise on how the Transmission Green Economy fund operated and it became clear that the new Distribution Net Zero Fund should operate in a similar way.

Build for a sustainable future – our stakeholders believe we're in a unique position to help enable change. We can drive widespread change through our central role in the energy sector, position in our communities, and ability to distribute benefits through socialising innovation and passing savings onto consumer bills.

The full priorities of the fund and the criteria of the fund can be found in Annex 4B.4: Distribution Net Zero Fund.

The projected benefits

It is estimated that a fund of £30m could provide the following benefits:

Support **over 50 low carbon projects** that would not have been able to proceed without our intervention, by providing support and funding

25% of the projects funded will be community projects, aligning to our community strategy.

Over 150 low carbon technologies installed, facilitating access to our cities and local communities

Provide guidance, support and **tangible benefits to over 14,000 consumers and communities in vulnerable situations**, targeting those who are in fuel poverty by reducing their energy bills

Boost the low carbon economy by **creating 80 direct and 456 indirect jobs**

Reducing cities and communities' carbon by **5500 tCO$_2$ pa** across the lifetime of the projects, resulting in better air quality and positive health benefits for our cities and communities

(Figures are based on the Green Economy Fund Project lifetime figures published within the Green Economy Fund Interim Report 2020)

The introduction of a fund will support the just transition to a Net Zero future for all, encouraging and supporting our communities to move forward and ultimately deliver the environmental and health benefits that a zero-carbon society will secure.

4C.1 An Environmentally Sustainable Network

We play a critical role in meeting the UK's ambitious climate change targets for a sustainable, Net Zero future. While we do this, we must reduce our own environmental impacts, adapt our world-class, resilient network to the effects of climate change, and continue to deliver sustainable value for all our customers.

The environmental and sustainability requirements of RIIO-ED2 are a significant step-change from RIIO-ED1 and will require changes in our internal processes and systems to enable us to achieve our sustainability goals.

As a responsible network operator, we believe that our commitments do not and should not end at legal and regulatory compliance but that we should be leading the transition to a more sustainable network and society.

To deliver our Environmental Action Plan we will be investing £147.25m over the RIIO-ED2 period. These costs are embedded within Part 5A 'Our Expenditure Plans' and you can read more about our detailed plans in Annex 4C.3: Environmental Action Plan (EAP) Appendix A for full details of costs to deliver our environmental and sustainability plans.

Our staff and contractors will need additional training and upskilling to ensure that they are aware of new environmental requirements and how this impacts their role. For further information on our workforce plans please see Chapter 4C.2: Promote an inclusive, skilled and community based workforce and Annex 4C.4: Workforce Resilience Strategy.

Our systems will require investment to be able to collect, store and report additional environmental data and our procurement process will be reviewed to include further environmental considerations to make sure we deliver on our obligations.

Our plan is ambitious, and we are dependent on our supply chain to deliver core aspects of our plan. We must work in collaboration with our supply chain to support them and bring them along on this journey with us, ensuring that smaller suppliers are not left behind. To enable this transition of our supply chain we will require increased resources within supply chain management in our businesses. Please see the Supply Chain Sustainability chapter of our EAP for further information. For more information on how we will deliver our plan, please see Part 5 Delivering our Plan.

Our RIIO-ED2 foundations

Throughout RIIO-ED1, we have taken significant action to improve our environmental performance. We have more than halved our business carbon footprint. We remain on track to meet our goal of zero regulatory interventions and zero notifiable environmental breaches and we have worked with our innovation and supply chain partners to develop more sustainable solutions.

Our RIIO- ED1 highlights:

Since 2013/14, the year of our baseline measurements, SPD and SPM have jointly achieved a 55% reduction in Scope 1 and 2, excluding losses

We have kept SF_6 leakage within our target of 0.75%

We have diverted 87% of our operational waste from landfill

We have reduced fluid filled cables by 76%.

RIIO-ED2 changes

Our plans for environmental sustainability in RIIO-ED2 are more ambitious than ever before. This is in line with the accelerating global environmental agenda and significant stakeholder and customer support – as well as Net Zero targets set by the UK, Welsh and Scottish Governments.

In this section, you will read about:

- Our stakeholder led Sustainable Business Strategy which outlines our vision, drivers, goals and objectives for environmental and sustainability improvements to 2050.

- How we have developed our RIIO-ED2 plans in line with environmental management best practice and how we plan to deliver these plans.

- An outline of our Environmental Action Plan (EAP), which sets out how we plan to decarbonise the electricity distribution network and reduce the environmental impacts of our activities.

- Our performance targets that will drive our progress and be reported in the new Annual Environmental Report (AER) and Environmental Scorecard (Ofgem assessment of individual areas of environmental performance).

You can find more detail in:

Annex 4C.3: Environmental Action Plan

Annex 4A.7: Climate Resilience Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with sustainability experts through specific bilaterals, workshops and surveys as well as asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Reduce our carbon footprint in line with Net Zero ambitions

While stakeholders encouraged us to move towards carbon neutrality as soon as possible, it was also underlined that any emission target we set for our business must be achievable given our lack of control over certain elements (e.g. speed of technological development or regulation). Stakeholders urged us to decarbonise our heavy vehicle fleet as aggressively as possible and to consider solutions such as hydrogen or green gas. 75% agree that we should be taking active measures to reduce our carbon footprint.

Set stretching sustainability targets for our supply chain and support them in the sustainability transition

Stakeholders supported our drive to drill into the environmental impact of its supply chain and to set out ambitious sustainability standards for its supply chain partners. Stakeholders agreed that we should expect suppliers to demonstrate that they meet these standards by adopting relevant certifications. 72% of customers agreed with this idea and they felt that our targets are irrelevant if our suppliers are not also focusing on sustainability.

Protect and continually enhance the biodiversity around our assets and support national and local strategies

87% of stakeholders agreed with our plans to implement a biodiversity and natural capital action plan to identify targets to increase environmental value across our network, but at a higher level, stakeholders urged us to be as ambitious as possible regarding biodiversity and natural capital enhancements. 71% of customer agreed that we should take steps to improve sustainability in their communities.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our sustainability plans will enable us to reduce our carbon footprint, set stretching sustainability targets for our supply chain and protect and continually enhance the biodiversity around our asset while supporting national and local strategies.

We have **10 detailed commitments in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below**:

DS1	We will decarbonise our network, its assets and our business operations such that we achieve Net Zero Carbon by 2040, achieving 80% of our target by 2030
DS2	We will reduce our impact on the natural environment and promote biodiversity across our licence areas through enhanced plans, standards and systems within our business and our supply chain
DS3	We will place sustainability in its broadest sense at the heart of everything we do, to deliver social and economic returns and a just transition
DS6	We will ensure our current and future workforce benefits from new and enhanced capabilities, to provide them with the necessary skills for the future
NZ2	We will deliver £84m of savings for our customers by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials.

Percentage of customers who support the commitments*	Household	Commercial
	82.00%	**84.70**%

Percentage of customers who are willing to pay, at least the ED2 cost, for commitments in this topic area.	**84.30**%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

Delivering a more sustainable network

Our Sustainable Business Strategy

Our Sustainable Business Strategy outlines our stakeholder-led vision, drivers, goals and objectives for environmental and sustainability improvements to 2050. These underpin our RIIO-ED2 commitments and go beyond legal compliance requirements. This Strategy is currently under review as part of our RIIO-ED2 business planning process and will be updated in line with stakeholder input before the submission of our final RIIO-ED2 Business Plan in December.

Our sustainable business model underpins everything we do, making sure that we:

- Consider environmental, social and economic costs and benefits in decision-making
- Collaborate with stakeholders to achieve shared environmental goals
- Display transparency in decision-making processes and report our performance.

Our Vision

Our vision is to be a sustainable networks business. We'll embed the principles of sustainability in our decision-making. We'll work with our stakeholders to efficiently manage and develop our networks in support of the low carbon transition, and to achieve neutral or positive environmental and social impacts.

Our actions to become a sustainable network operator will drive our supply chain and support our customers and communities to become more sustainable. During RIIO-ED2 we will continue to drive industry-wide collaboration for the benefit of all customers and will keep engaging our environmental and sustainability stakeholders through our Sustainable Stakeholder Working Group.

Our Sustainability Drivers

Our sustainability drivers outline the six key impact areas we must address to deliver our vision of a sustainable networks business. These are aligned to the United Nations Sustainable Development Goals – **Annex 4C.3: Environmental Action Plan** provides further detail on this alignment.

Sustainable Society

Carbon and Energy Reduction

Water Efficiency and Protection

Land and Biodiversity Improvement

Sustainable Resource Use

Achieving the sustainability step-change

We take a systematic approach to reducing our environmental impacts by using a documented Environmental Management System (EMS). At its core is the risk assessment process we use to decide how the environmental impacts of our activities are prioritised for action. This system has been externally certified for over a decade to ISO14001:2015 and is fully embedded in our business processes.

To help develop our RIIO-ED2 Investment Plan, we used Initial Environmental and Sustainability Reviews (IESRs). These provide an early assessment of potential environmental and sustainability issues and opportunities. An IESR is conducted for all relevant projects and scopes of work at the concept design stage. All our Engineering Justification Papers (EJPs) and relevant Cost Benefit Analyses (CBA) for RIIO-ED2 were independently reviewed for environmental and sustainability content by expert external specialists, and scope of works revised to reflect any recommendations. Please see Annex 4A.23: EJP and CBA Index for more detail.

To help realise our sustainability aims, we will continue to embed further environmental considerations in our business processes in line with ISO14001 requirements for continuous improvement. We will improve the quality of environmental data collected and analysed at all stages of the asset lifecycle, investing in enhanced geospatial systems and formalising data sharing collaborations.

Please see Annex 4C.1: Digital Strategy for further information.

Our commitments and deliverables in RIIO-ED2

We will embed environmental sustainability considerations in our business processes whilst maintaining and continually improving our ISO14001 certified Environmental Management System, with the aim of achieving 'beyond compliance' environmental performance and our sustainability goals.

We will continue to provide transparent reporting of our environmental and sustainability performance by publishing an annual report of our progress against all environmental and sustainability commitments – in line with metrics and a format developed in collaboration with the other DNOs.

We will improve the quality of environmental data collected and analysed at all stages of the asset lifecycle, investing in enhanced IT systems and formalising data sharing collaborations with key stakeholders.

We will continue to ensure that our staff, contractors and suppliers have the skills and knowledge to allow us and our supply chain to move beyond compliance and achieve our Sustainability Goals.

We will embrace opportunities to collaborate with external organisations where this will accelerate progress and more efficiently achieve our shared goals.

Supporting Deliverables

We will embed a process for Initial Environmental and Sustainability Reviews (IESRs) for all relevant projects, to identify potential environmental issues and opportunities at the earliest stage.	*By 2023*

Sustainable supply chain management

Our strong relationship with our supply chain is critical to the success and sustainable delivery of our plans. Our suppliers provide a wide range of services throughout the whole lifecycle of assets, from design to decommissioning.

We will go beyond an expectation of safe, efficient and compliant works, collaborating with suppliers to: minimise environmental impacts; set and deliver enhanced environmental standards; and drive industry-wide environmental improvements.

We will continue to encourage suppliers to sign up to our free procurement platform, Go Supply, which includes a detailed assessment of sustainability credentials as part of registration. When strategic suppliers don't meet our minimum sustainability criteria, we will continue to collaboratively set up improvement plans – helping our suppliers gain the skills and knowledge to become compliant.

How we did in RIIO-ED1
During RIIO-ED1, we updated our standard contract terms, pre-qualification questionnaires and specifications. This requires suppliers and contractors to report on their environmental management standards every month. We also became a partner of the Supply Chain Sustainability School (SCSS) requiring all new contractors to sign up to the school and engage with sustainability training. This free service provides a wide range of educational resources to help our suppliers on their sustainability journey. We have also made the Supply Chain Sustainability School available to all our employees, achieving a Gold Award in recognition of our commitment to upskilling our colleagues and increasing environmental literacy across our supply chain.

Working with our suppliers and contractors throughout RIIO-ED1 has resulted in many solutions being piloted, such as the trial of the reuse of plastic buckets for jointing resin. This project has the potential to save over £29,000 each year from mixed recycling costs and save up to 220 tonnes of carbon dioxide equivalent (tCO$_2$e) annually.

Our commitments and deliverables in RIIO-ED2

We will further enhance environmental sustainability standards and performance metrics in our contracts and will collaborate with our supply chain to target more than 80% of RIIO-ED2 suppliers (by value) meeting these standards.

Supporting Deliverables

We will increase consideration of environmental sustainability in our procurement processes in line with ISO20400 Sustainable Procurement Standard, including a carbon metric as a minimum.	*By 2023*
We will continue to be a Supply Chain Sustainability School Partner, requiring contractors and suppliers for all new contracts to become members and undertake relevant sustainability and environmental training.	*Throughout RIIO-ED2*
We will engage with suppliers early in the development of projects to enable them to propose environmental improvements at concept and design stages.	*By 2025*
We will engage with suppliers throughout the duration of their contracts to continue to reduce impacts and optimise benefits.	*Throughout RIIO-ED2*

Decarbonising our network and assets

The most effective way for us to mitigate climate change is by connecting low carbon technology to decarbonise society. While we do this, we must also reduce the carbon footprint of our business operations, and make sure our network is resilient to the effects of climate change.

Our targets for decarbonising our network are deliberately challenging. To achieve them, we will need transformation at every level of our business. To determine the most cost-efficient interventions, we identified the options available and considered the costs against the quantity of carbon reduction. This allowed us to achieve the carbon savings at the lowest cost to the customer.

Our strategic vision

We will be a carbon neutral company throughout our value and supply chains and will actively support our customers and local communities towards achieving this goal.

We will develop our network to mitigate impacts of climate change.

The materials required for network construction and operation will come from sustainable sources.

Our strategic objective is to reduce our controllable carbon footprint (excluding network losses) by 15% by 2023, and by 80% by 2030.

Related sustainability drivers

Sustainable Resource Use

Climate Change Resilience

Carbon and Energy Reduction

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Summary

Carbon Reduction (Business Carbon Footprint)

We measure and report our business carbon footprint (BCF) each year. Our BCF can be classified into the following scopes, in alignment with the Greenhouse Gas (GHG) Protocol:

Scope 1 – direct emissions

Activities owned or controlled by our organisation that release emissions straight into the atmosphere.

Examples: Fleet transport, SF_6 gas emissions and red diesel use.

Scope 2 – indirect emissions

Emissions being released into the atmosphere associated with our consumption of purchased electricity, heat and cooling.

Examples: Electricity losses, building and substation energy use.

Scope 3 – additional indirect emissions

All other indirect emissions within our value chain. These are a consequence of our actions and occur at sources we do not own or control but are not classed as Scope 2 emissions.

Examples: Business travel, emissions reported from our contractors' activities and emissions generated to produce built assets.

By the time of the submission of our final RIIO-ED2 Business Plan in December 2021, we will have set our verified Science-Based Target (SBT) for Scope 1 and Scope 2 carbon emission reductions aligned with a 1.5°C pathway.

Targets are considered 'science-based' if they align with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

In addition to setting our Scope 1 and 2 targets, we aim to develop a CVP for inclusion in our final Business Plan, wherein we will propose a voluntary Science-Based Target for our indirect Scope 3 carbon emissions – going beyond Ofgem RIIO-ED2 baseline expectations and SBTi requirements, and furthermore aligning with the most ambitious pathway (limiting temperature rise to 1.5oC). These ambitious carbon reduction targets are supported by our customers and stakeholders, who were consulted through carbon specific RIIO-ED2 workshops.

By setting Science Based Targets across all scopes, we are extending our focus to include indirect carbon emissions from our supply chain in addition to our direct emissions reported within the BCF.

Looking beyond these SBTs, we will be a Net Zero greenhouse gas networks business across Scopes 1, 2 and 3 by 2040, reviewing our approach annually as global Net Zero definitions evolve.

Furthermore, we will achieve neutrality across our controllable greenhouse gas emissions from 2030, making the most ambitious reductions possible within technological and regulatory boundaries, reviewing our approach annually and removing or offsetting what cannot be reduced – in line with the PAS2060 specification for the demonstration of carbon neutrality.

These two targets are subject to ongoing stakeholder engagement as we better quantify the associated costs and benefits – particularly with regard to the deadline years, which may become more ambitious in our final Business Plan in December, if stakeholders support this.

We will apply the Oxford Carbon Offsetting Principles to any carbon offsetting used to achieve carbon neutrality, to ensure such offsetting is robust and credible.

Throughout RIIO-ED2, we will adopt the principles of the PAS2080 Carbon Management in Infrastructure standard. We will work with our design teams and supply chain to identify carbon hotspots and reduce carbon by following the carbon reduction hierarchy: build nothing, build less, build clever, build efficiently.

By embedding carbon management at all stages in the lifecycle of our projects, we will reduce carbon while maintaining value for money and supplier diversity.

How we did in RIIO-ED1

Since 2013/14, the year of our baseline measurements, SPD and SPM have jointly achieved a 55% reduction in Scope 1 and 2, excluding losses. In 2013, we set a target to reduce emissions by 15% by 2023. We hit that target in our 2015/16 reporting year and are on track to achieve our 2030 goal of 80% reduction.

Electricity losses – energy lost or stolen from the network as it travels from source to user – is the largest category of our Scope 1 and 2 BCF. However, it's also the most heavily influenced by external factors beyond our control. Further details of these factors, and the action we are taking to reduce those aspects of losses that we can influence, can be found within the losses section of this chapter.

After network losses, our largest carbon footprint contributor is energy used in our buildings and substations, followed by contractor emissions, business transport, and Sulphur hexafluoride (SF_6) used in equipment.

The graph opposite demonstrates how we have outperformed expectation is RIIO-ED1 and are on track to meet or exceed our medium-term goal for BCF CO_2 reduction.

Distribution Business Carbon footprint RIIO-ED2 Forecast (Scope 1 & 2 excluding losses)

tCO₂e
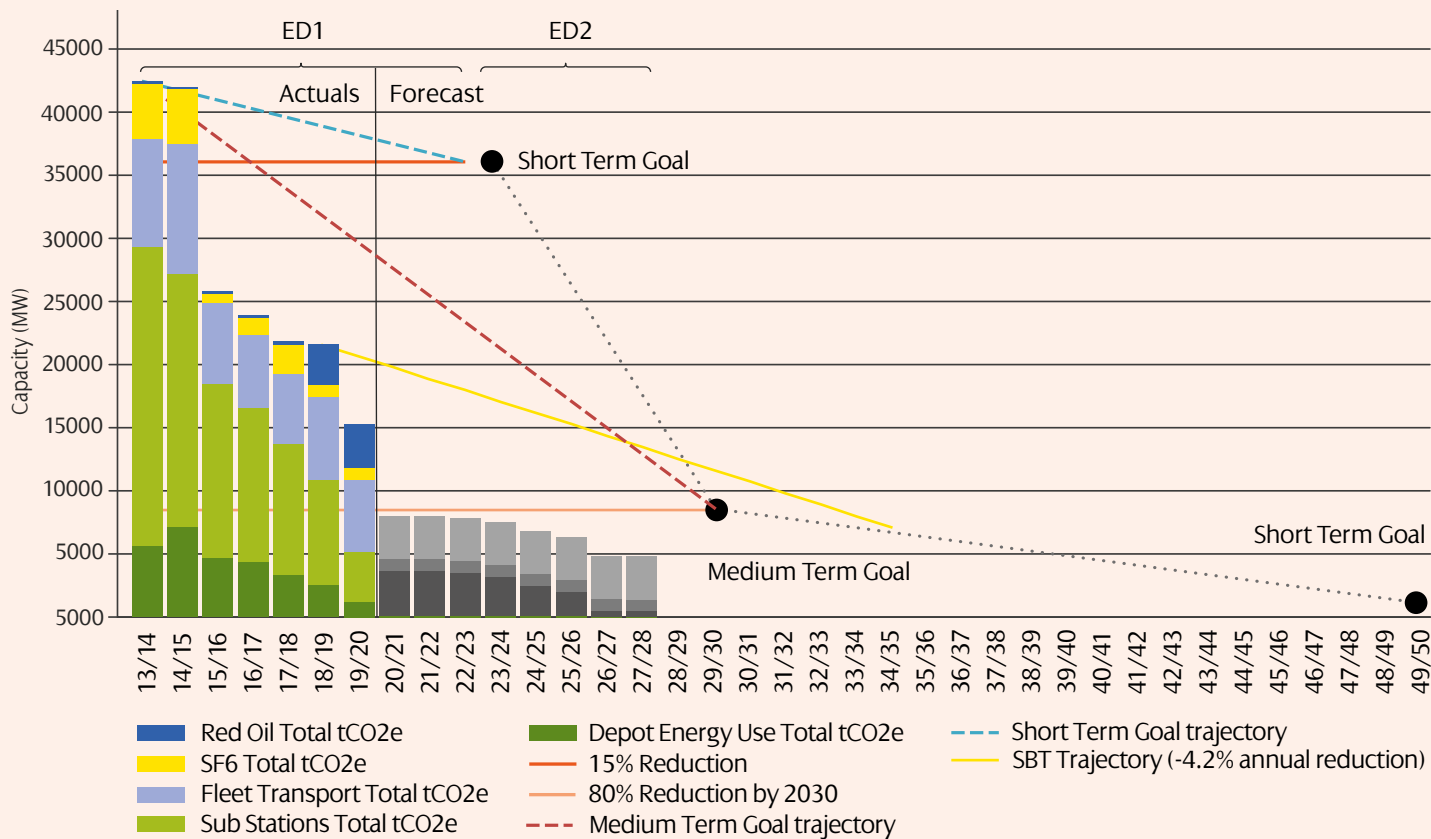
Our commitments and deliverables in RIIO-ED2

We will deliver efficient and economic actions to reduce our scope 1 & 2 business carbon footprint by 37.8% from a 2018/19 baseline, in line with a verified Science Based target

We will set a voluntary Scope 3 Science-Based Target by final RIIO-ED2 submission, to deliver efficient and economic actions to reduce our business carbon footprint during RIIO-ED2. (Proposed CVP)

We will minimise our business carbon footprint and achieve Net Zero by 2040.

We will achieve Carbon Neutrality by 2030 in line with Iberdrola Group policy, for our Scope 1 & 2 business carbon footprint excluding Losses.

Supporting Deliverables

We will identify metrics, and associated targets, for RIIO-ED2 to track the impact of implementing actions and the overall progress towards our carbon reduction targets.	*By 2023*
We will implement processes for carbon management in relevant business activities, aligned with PAS 2080 Carbon Management in Infrastructure.	*By 2025*

Scope 1 emissions *tonnes of CO₂ avoided 9,447tCO₂e*

Operational transport

We are committed to decarbonising our fleet vehicles. In September 2019, our parent company Iberdrola signed up to The Climate Group's EV100 initiative. The agreement will see Iberdrola electrify the bulk of their vehicle fleet (subject to local market conditions) by the end of 2030. We will be at the forefront of this initiative. During RIIO-ED2 we aim to outperform this 2030 target and accelerate the electrification of our fleet to 2028 (the end of RIIO-ED2).

How we did in RIIO-ED1
The carbon impact from distribution operational transport has decreased by 10% and related fuel use has reduced by 11% since the start of RIIO-ED1.

Our commitments and deliverables in RIIO-ED2

We will decarbonise our operational fleet by 2030, replacing 100% of over 800 cars and vans with electric alternatives in line with the Iberdrola EV100 commitment and will seek to further accelerate this to 2028 during the RIIO-ED2 period.

Supporting Deliverables

We will install electric vehicle charging infrastructure for our operational fleet at our sites	*Throughout RIIO-ED2*
We will strive to lead the decarbonisation of fleet vehicles, working with suppliers and other fleet operators to pilot technically viable alternatives to drive technical advancements and early adoption.	*Throughout RIIO-ED2*

Fugitive emissions
(SF$_6$ and other Insulation and Interruption Gases)

SF$_6$ is a colourless and odourless gas used for both insulation and arc interruption in switchgear applications. It has exceptional insulating properties that allow safe, compact and low-cost switchgear solutions. Although it causes no detectable impact on the immediate environment, if released it is a highly potent greenhouse gas with a global warming potential of 23,500 times that of CO$_2$.

Switchgear filled with SF$_6$ is one of the dominant solutions offered to the industry for new switchgear applications and the replacement of legacy oil-filled switchgear. By installing modern SF$_6$ filled switchgear, we have been able to enhance the operational safety of our asset base, reduce ongoing plant maintenance costs and remove oil, and its associated environmental impacts, from the network. For some applications, SF$_6$ is the only viable solution available at present. We therefore anticipate that the quantity of SF$_6$ on our network, described as the 'SF$_6$ Bank', will increase as the replacement of end-of-life oil-filled switchgear programmes proceed. Efforts to minimise the escape of SF$_6$ from equipment to the environment are therefore hugely important.

We are continuing to work with industry and our supply chain to support the implementation of other SF$_6$ free solutions with a view to adopting suitable alternative on our network wherever practicable, including tendering exclusively for non-SF$_6$ equipment where possible.

The challenges associated with the substitution of SF$_6$ switchgear with non-SF$_6$ filled alternatives vary by voltage level and application. We will prioritise works where we can achieve the greatest reduction in SF$_6$ volumes, to minimise the increase in our SF$_6$ Bank, for the lowest economic cost investment.

How we did in RIIO-ED1
SPD comprises electricity networks below 132kV. SPM comprises networks up to and including 132kV. This results in SPM managing larger equipment with higher amounts of SF$_6$ and therefore differs from SPD in SF$_6$ Bank, how much SF$_6$ is leaked, and how these leaks are managed.

SF$_6$ equipment held by SPD is small and has much of its SF$_6$ held in sealed containers with no facility to top up. Therefore, where SF$_6$ levels are shown to have dropped below a defined threshold, these pieces of equipment must be replaced.

Since 2013, annual SF$_6$ leakage as a percentage of total volume has remained comparatively low, staying within target at 0.75% of total mass against a target of 0.85%. However, leakage needs to be significantly reduced in order to achieve our 2030 and 2050 carbon reduction targets, despite the likely ongoing increase in volume of SF$_6$ on our network. To reduce leakage, we quickly repair or replace assets, targeting the leakiest first and drawing on expert support to utilise the latest approaches and technologies.

Despite a considerable amount of effort spent in attempting to fix leaky assets, SPD SF$_6$ leakage total increased by 70 tCO$_2$e in 2019/20. This was primarily as a result of improvement in the completeness of data collected, and we have included emissions from the small number of top-ups carried out in the reporting year. In 2019/2020, SF$_6$ leakage in SPM was 13% lower than 2018/2019 figures, due to a substantial leakage repair programme.

Our commitments and deliverables in RIIO-ED2

We will reduce our SF$_6$ leakage by 10% over the RIIO-ED2 period compared to RIIO-ED1.

Supporting Deliverables:

We will use alternatives to SF$_6$ insulating gas for all new circuit breakers, Ring Main Units and Gas Insulated Switchgear installations at all voltages, where there are technically feasible market-ready solutions.	*Throughout RIIO-ED2*
We commit to reporting on total SF$_6$ Bank and leakage reduction rates using a common Distribution Network Operator (DNO) methodology.	*By 2023*
We will continue to carefully manage our assets in line with our SF$_6$ Strategy to minimise SF$_6$ leakage, repair leaks quickly, and where this is not possible, replace the asset before its anticipated end of life.	*Throughout RIIO-ED2*
We will continue to require manufacturers to provide equipment with a SF$_6$ leakage rate which is half that of the internationally recognised standards, where technically viable.	*Throughout RIIO-ED2*
We will drive the development and adoption of SF$_6$ – free technologies, collaborating with supply chain and industry peers and piloting new technologies where technically viable.	*Throughout RIIO-ED2*

Fuel consumption (including red diesel, natural gas and other fuels used in buildings and operations)

We are continually exploring ways to reduce fuel consumption. In 2018, we piloted innovative battery powered generators in our fleet to reduce red diesel usage. These prototypes are technically viable and deliver many benefits to consumers and society, including improved air quality, reduced noise pollution and reduced carbon emissions.

In RIIO-ED2, we will work collaboratively with our supply chain to ensure that all generator contracts include a low carbon solution. We will also reduce the carbon impact of using natural gas in our buildings by improving the heating efficiency of our buildings.

How we did in RIIO-ED1
We've expanded our reporting to include historic fuel use for hire generators, providing greater visibility of the carbon footprint of our fuel use, resulting in an increase in the total carbon impact of our generator fleet from 233 tCO$_2$e in 2015/16 to 3,403 tCO$_2$e in 2019/20.

Our commitments and deliverables in RIIO-ED2

We will update our generator contracts to create flexibility and availability for quicker restoration, with generator companies tasked with including a low carbon solution.	*Throughout RIIO-ED2*

Scope 2 emissions	*tonnes of CO_2 avoided 6535tCO_2e*

Buildings energy usage

The electricity that we use in our offices, depots and substations represents the largest portion of our Scope 2 emissions (excluding losses). It is imperative that we reduce these emissions and the electricity used. Since September 2019, we have purchased green electricity through a 100% UK-based renewable energy tariff backed by Power Purchase Agreements (PPA) for the majority of our buildings and substations. All energy used under this tariff has a carbon emissions factor of zero, significantly reducing the carbon footprint of the energy we use at our depots and substations. However, we must also reduce electricity consumption at these sites to free up renewable energy for others to use. We will do this by implementing energy efficiency measures including lighting and heating improvements. We have updated the specifications for our buildings so that when we intervene to replace or repair network assets, we will also bring our buildings up to meet these new improved standards.

How we did in RIIO-ED1
In line with the Greenhouse Gas (GHG) Protocol, the carbon emission related to any electricity use not covered by the green tariff (all electricity used between 1 April and 1 September 2019 and unmetered sites, radio base stations and some small substations thereafter) has been calculated using the UK residual mix carbon factor.

The move to the green tariff has reduced our recorded emissions from buildings energy use in SPD from 6,067 tCO_2e in 2018/19 to 3,034 tCO_2e in 2019/20. In SPM it was reduced from 4,923 tCO_2e in 2018/19 to 2,199 tCO_2e in 2019/20. We expect this to decrease further in 2020/2021 when we have a full year's energy consumption on the green tariff.

Our commitments and deliverables in RIIO-ED2

We will continue to purchase green electricity through a 100% UK-based renewable energy tariff backed by Power Purchase Agreements (PPA) for all our buildings. Beyond this, we will reduce our buildings and substations energy consumption by a minimum of 15.2GWh (8%) over the RIIO-ED2 period.

We will reduce energy consumption by a total of 3.4GWh at 650 of our primary substations by applying our recently updated civil specifications (including improvements to heating, lighting and insulation).

Supporting Deliverables:

We will refurbish 8 of our strategic office and depots sites, implementing energy efficiency measures to achieve BREEAM ratings of 'excellent' for new build and 'very good' for refurbishments, to reduce consumption by 11.7GWh overs the RIIO-ED2 period.	*Throughout RIIO-ED2*
We will pilot and monitor renewable generation at substation and/or depot sites to offset building energy demand.	*By 2028*

Network Losses

Our Losses Strategy is based upon our vision to consider all reasonable measures that can be applied to reduce losses and adopt those measures which provide benefit for customers. The source of network losses is detailed in Chapter 4A.1: Develop the Network of the Future. Our Losses strategy can be found in Annex 4A.8: Losses Strategy.

In RIIO-ED2 and beyond, we anticipate that for an efficient, Net Zero transition distribution network losses will increase as a result of the electrification of heat and transport and the increase of low-carbon distributed generation. These additional losses could be considered 'green' or low-carbon losses, because they are derived from renewable generation. Therefore, whilst they still have a cost implication to the customer through energy charges, the societal cost of losses – primarily in terms of carbon impact – is changing.

How we did in RIIO-ED1
Since 2013, distribution network losses have averaged 6-7% of the total energy transmitted, and the carbon intensity of these losses has steadily decreased. Losses on the SPD and SPM networks have decreased in recent years, due to measures such as replacement of inefficient transformers, increasing cable sizes, and improvements against non technical losses.

We have reported on these developments annually, and updated our Losses Strategy periodically, to keep it relevant. Full details of our Losses Strategy, performance and initiatives to date can be found in pages 20 to 26 of our Distribution Environmental and Innovation Report and within our Annex 4A.8: Losses Strategy.

Our commitments and deliverables in RIIO-ED2

In RIIO-ED2, we will continue to implement our Losses Strategy to avoid an estimated 33 GWh of network losses, thereby limiting losses to a lower level than would otherwise be the case.

Supporting Deliverables:

We will continue to lead the Energy Networks Association Technical Losses Group to improve industry understanding of losses.	*Throughout RIIO-ED2*
We will continue to drive the development and understanding of losses by contributing to the evidence base on the proportion of losses that network companies can influence/control, collaborating with supply chain and industry peers and piloting new such as the MAAV.	*Throughout RIIO-ED2*
We will continue to consider and minimise network losses throughout all design and connections activities.	*Throughout RIIO-ED2*
We will pro-actively target high-loss legacy assets for replacement with modern low-loss alternatives.	*By 2028*
We will report on the progress of implementing the losses strategy and associated performance measures.	*Throughout RIIO-ED2*
We will use a minimum underground mains cable size of 300mm2 to further reduce losses, where it is cost effective and appropriate to do so.	*Throughout RIIO-ED2*
We will continue to use a minimum pole mounted transformer size of 25kVA to further reduce losses on our network.	*Throughout RIIO-ED2*

Scope 3 emissions *tonnes of CO$_2$ avoided 518tCO$_2$e*

Business transport

As a combined result of travelling less, competitive rail pricing and increased staff awareness of carbon emissions from travel, we have reduced our business travel jointly by 40% since the start of RIIO-ED1. The COVID-19 pandemic has subsequently resulted in a change to our business practices and we have increased IT capabilities to allow for virtual meetings and remote working. We will apply these learnings before and during RIIO-ED2 to ensure we embed as many of these changed practices to reduce our business transport emissions further.

In March 2021, the Scottish Power Group brought in a new business travel policy that will see a reduction of 2,300 tCO$_2$e per year across the group. This policy outlines that only essential travel will be permitted, that we will travel by train instead of flying on domestic journeys and that we will fly economy on international flights of less than 8.5 hours duration.

How we did in RIIO-ED1
SPM and SPD business travel carbon footprint combined has steadily decreased by 40% throughout RIIO-ED1 – from 2,417 tCO$_2$e in 2015/16 to 1,724 tCO$_2$e in 2019/20. This overall reduction is a result of increased staff awareness of carbon emissions from travel, reduced travel, competitive rail pricing and more accurate apportionment between our licences.

Our commitments and deliverables in RIIO-ED2

We will continue to implement our 2021 Business Travel Policy to reduce business travel emissions by at least 518 tC2O$_2$e during RIIO-ED2.

Contractor emissions

During RIIO-ED1 we worked to increase the number of contractors reporting their emissions and targeted our top 20 contractors, by value, to obtain accurate data. This enhanced our understanding of the impacts of our supply chain, allowing us to identify methods to reduce contractor emissions.

As part of our work to improve the data received from our contractors, we enlisted the help of SmartWaste – an online environmental reporting tool designed to monitor and report on areas such as waste generation and carbon impacts. This online tool allows us to collect, store and report data on our contractors. All of our Overhead Line (OHL) and Cable contractors have been adding their data to SmartWaste since January 2021.

How we did in RIIO-ED1
Over the course of RIIO-ED1 we have increased the number of contractors providing us with their emissions data from seven in 2015/16 to 26 in 2019/20. We require contractors to use SmartWaste and are supporting them as they begin this process of data sharing.

Our commitments and deliverables in RIIO-ED2

Our commitments to reducing our contractor's emissions are embedded within our supply chain sustainability section and our embodied carbon section below.

Embodied carbon

As energy is decarbonised, the carbon emitted as a result of the infrastructure we build and maintain will account for an increasing percentage of our carbon footprint. In order for us to reduce our carbon footprint in line with Scope 3 carbon reduction targets, we must embed whole life carbon management principles (including reduction of embodied carbon) into our business processes and decision making. We must demonstrate leadership throughout our value chain to realise the required reductions and collaborate and share best practices with other client organisations to encourage industry best practice.

Throughout RIIO-ED2, we will adopt the principles of the PAS2080 Carbon Management in Infrastructure standard and will quantify and set reduction targets for embodied carbon. We will work with our design teams and supply chain to identify carbon hotspots and reduce carbon by following the carbon reduction hierarchy: build nothing, build less, build clever, build efficiently.

How we did in RIIO-ED1
Our recent Scope 3 carbon screening confirms that embodied carbon currently represents 39% of the total carbon impact of our network and operations.

Throughout RIIO-ED1, assessment and reduction of embodied carbon has been driven through standalone innovation projects. In 2020, we undertook a distribution specific carbon life cycle assessment for our LV Engine project. This Ofgem funded Network Innovation Competition (NIC) project aims to implement a globally innovative network trial of smart transformers that will connect Low Carbon Technologies (LCTs).

This project was key in developing our understanding of embodied carbon and demonstrated a best practice methodology for carbon management. The ambition for RIIO-ED2 is to move from a model where embodied carbon is quantified on a case by case basis, to a model where embodied carbon reduction is quantified and driven as standard.

Our commitments and deliverables in RIIO-ED2

We will quantify embodied carbon to establish a baseline and set a reduction target.

Supporting Deliverables:

We will introduce a measurement tool for embodied carbon in new projects.	**By 2023**
We will work collaboratively with our stakeholders, including the other Distribution and Transmission Network Operators, throughout RIIO-ED2 with the aim of assessing and managing capital carbon on our projects, driving efficiencies throughout our supply chain, and sharing best practice.	**Throughout RIIO-ED2**
We will monitor and report on embodied carbon in new projects.	**Throughout RIIO-ED2**

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Reducing our environmental impacts

As we deliver the low carbon transition and reduce our carbon impact, we must also consider wider environmental impacts. We need to prevent pollution, protect and enhance biodiversity, use resources sustainably, and encourage our suppliers to minimise their environmental impacts.

Our strategic vision

We will have a net positive impact on the environment and the communities in which we operate.

The principles of a circular economy and efficient use of resources will be embedded in our business. The materials we use for network construction and operation will come from sustainable sources.

We will produce zero waste, with the components of all end-of-life assets being reused or recycled into new products.

We will protect and continually enhance the biodiversity around our assets and support national and local strategies. Our decision-making will incorporate the principles of Natural Capital Assessment to ensure that levels of natural assets are at least protected, if not enhanced.

Strategic objectives

- To divert 95% of waste from landfill by 2023, re-use or recycle 100% of waste by 2030 and achieve zero waste by 2050.

- To reduce our water use 10% by 2023, 25% by 2030 and 50% by 2050

Related sustainability drivers

Sustainable Society

Water Efficiency and Protection

Land and Biodiversity Improvement

Sustainable Resource Use

Preventing pollution

We construct, operate and maintain infrastructure which is routed through, or next to, a wide range of culturally or environmentally sensitive landscapes and structures. We must minimise any negative effects our activities could have on the environment and communities as much as we reasonably can.

Priority impacts for preventing pollution

In line with the requirements of ISO14001, we continuously review our environmental risks and impacts and seek to prioritise and reduce them. This process has informed the development of our RIIO-ED2 programme of measures to prevent pollution. Priority areas we have identified include:

- Construction sites and substation drainage systems

- Emissions to air

- Fluid-filled cables

- Noise pollution

- Oil leaks

- Polychlorinated biphenyls (PCBs)

- Resource consumption and waste production

- Use of hazardous materials including creosote poles.

Much of our network was constructed several decades ago, before many of the environmental protections we now apply were in place. We are working to bring these older sites up to current standards. During the RIIO-ED2 period we will target zero environmental regulatory interventions and notifiable breaches.

To support the development of our RIIO-ED2 investment plan, we undertook a comprehensive programme of civil inspections to inform a condition-based asset risk assessment. This identified a number of bunds and drainage systems requiring refurbishment and upgrade.

How we did in RIIO-ED1
Over the RIIO-ED1 period we have achieved full reporting of environmental incidents, by staff and contractors, and reduced the number and severity of such incidents.

As a direct result of strategic repair and targeted asset replacement we have reduced fluid filled cable leaks by 76% since reporting year 2015/16. In 2019/20 reporting year we received two enquiries in SPD and five in SPM in relation to noise from our equipment.

Over the RIIO-ED1 period we have intervened at 114 sites – 56 SPM operational sites, 54 SPD Operational sites and 4 SPD Non-Operational sites, as part of our oil mitigation schemes.

During RIIO- ED1, we have been working towards a gradual removal of contaminated equipment (containing more than 0.005% or 50ppm of PCBs) at end of life, without a hard deadline, and targeting equipment with fluid volumes greater than 5L. As per the EU and UK legislations that came into full force in 2019, any equipment that contains PCBs above the threshold or may contain such a level (where for example the asset is pre-1987 and cannot be tested due to its sealed nature) must now be removed from the network as soon as possible and no later than by the end of 2025 or must be confirmed to be PCB free via testing or changing the oil. We have therefore included this requirement in our RIIO-ED2 investment planning at a value of £71m.

Our commitments and deliverables in RIIO-ED2

We will target zero environmental regulatory interventions and notifiable breaches.

We will implement Pollution Prevention Plans at 100% of our new 132kV projects for RIIO-ED2 and beyond.

We will reduce the volume of fluid (oil) used to top up our pressurised cables by around 3,490 litres (10%) by replacing over 19km of our leakiest fluid filled cable.

We will continue to report on noise pollution incidents and actions taken to reduce them.

We will eliminate PCBs from our network by the end of 2025, in line with legislation and the risk-based industry approach agreed with the environmental regulators.

100% of our RIIO-ED2 retrofit bunding projects will utilise a High-Density Polyethylene (HDPE) bunding system where technically feasible.

Supporting Deliverables:

We will adopt new technologies, where appropriate, to support the ongoing proactive management of our fluid filled cables.	*Throughout RIIO-ED2*
We will continue to proactively minimise the impacts of noise resulting from the construction, maintenance and operation of our electrical infrastructure and take timely action to rectify noise complaints from our plant and sites.	*Throughout RIIO-ED2*
We will report on volumes of PCB contaminated equipment on and removed from the network.	*Throughout RIIO-ED2*
We will upgrade existing or install new bunds at 203 of our Primary and Grid transformers as part of our RIIO-ED2 programme of oil mitigation measures, where adequate bunding is not in place.	*Throughout RIIO-ED2*
We will implement a programme to identify, risk assess and address high risk legacy land contamination.	*Throughout RIIO-ED2*

Land and biodiversity Improvement

We mitigate biodiversity loss most significantly through our actions to maximise the utilisation of our network and connect low carbon generation for societal decarbonisation. This leads to benefits in terms of climate change mitigation, avoidance of additional land use and reductions in pollution.

While we do this, we also protect and enhance the ecosystems we operate within, mitigating the ecological impacts of construction by aiming for 'no net loss' and avoiding the introduction or spread of invasive non-native species.

Our aim in RIIO-ED2 is to deliver a Biodiversity & Natural Capital Action Plan for our network and, at the same time, develop, embed and trial a robust enhancement methodology. This will allow us to set realistic, cost-efficient targets for positive impact, and stay flexible enough to align our targets with existing and new UK, Welsh and Scottish legislation. We will protect levels of natural capital and biodiversity across our RIIO-ED2 work programme, seeking to deliver enhancements were appropriate and cost effective.

For more detail on our current biodiversity activities and performance, please see page 32 of our Distribution Environmental and Innovation Report.

How we did in RIIO-ED1
Our routing and environmental impact assessment process considers a range of environmental factors – including biodiversity – alongside technical constraints and licence requirements. This process is under review, and we are embedding biodiversity measurements in advance of RIIO-ED2.

Our commitments and deliverables in RIIO-ED2

We will implement a Biodiversity & Natural Capital Action Plan process to guide local operation implementation with the aim of increasing environmental value across our network.

Supporting Deliverables:

We will collaborate with stakeholders, including other DNOs, throughout RIIO-ED2 to develop and pilot robust methodologies and tools for delivering Biodiversity and Natural Capital assessment.	*Throughout RIIO-ED2*
We will engage with UK and devolved governments with the aim of influencing biodiversity and natural capital policy to facilitate delivery of our biodiversity and natural capital goals.	*Throughout RIIO-ED2*
We will identify, and subsequently monitor and annually report, metrics to track the levels of biodiversity and value of natural capital and ecosystem services on our sites and the achievement of our targets.	*Throughout RIIO-ED2*
We will form strategic partnerships with local ecological protection organisations to support our activities to improve habitats for wildlife and to support people's access to nature.	*By 2023*

Sustainable resource use and waste reduction

We are working to embed the principles of a circular economy and will follow an appropriate, recognised standard such as the BS8001 circular economy implementation framework.

In line with the waste hierarchy, 'reduce, re-use, recycle', we're placing additional focus on:

- Avoiding waste generation by designing out waste

- Keeping materials in use at the highest value for as long as possible

- Managing any remaining waste to maximise its re-use or segregation for recycling.

To achieve our sustainable resource use goals, it's vital we have effective sustainable procurement processes and collaborate effectively with our supply chain. By the end of RIIO-ED2 we will be diverting 98% of our waste from landfill, in line with achieving our 2030 target of 100% diversion by 2030. Waste targets are subject to ongoing stakeholder engagement as we better quantify the associated costs and benefits – particularly with regard to carbon impact of waste. 2030 date may accelerate and become more ambitious in our final Business Plan in December, if stakeholders support this.

How we did in RIIO-ED1
During RIIO-ED1 we have diverted on average 87% of our operational waste from landfill. We are on track to meet our 2023 target of 95%.

We also introduced enhanced environmental requirements within our procurement processes. For further details of our performance on sustainable resource use and waste reduction, please see page 29 of our Distribution Environmental and Innovation Report.

Our commitments and deliverables in RIIO-ED2

We will divert 100% of our waste from landfill by 2030, excluding compliance waste.

We will set targets for reduction in waste produced per £ total annual expenditure, to be achieved by end RIIO-ED2 and 2030.

Supporting Deliverables:

We will continue to collaborate with environmental/ waste regulators, other infrastructure companies and our supply chain to drive sustainable resource use and waste minimisation in order to meet our RIIO-ED2 and Sustainability Goals.	*Throughout RIIO-ED2*
We will implement metrics to measure the sustainability of our resource use, with the aim of establishing a baseline to enable target setting during RIIO-ED2.	*By 2025*
We will continue to report on actual waste to landfill, recycling and reuse as a percentage of total and we will commence reporting on all new waste and resource use metrics.	*Throughout RIIO-ED2*
We will set targets for recycled & reused materials as a % of total input materials to be achieved by end RIIO-ED2 and 2030.	*By 2023*
We will follow an appropriate, recognised standard such as BS8001 to embed circular economy principles where relevant throughout our business processes.	*Throughout RIIO-ED2*
We will continue to collaborate on innovation projects to reduce the number of wood poles that need to be replaced during RIIO-ED2.	*Throughout RIIO-ED2*
We will continue to collaborate with other DNOs and our supply chain to develop innovative alternatives to creosote wood poles.	*Throughout RIIO-ED2*

Enhancing visual amenity

We have over 38,000km of overhead lines supported by over 607,000 poles and towers across our SPD and SPM operating areas. Some of these assets are located in or next to protected sites such as national parks, Areas of Outstanding Natural Beauty (AONB) and National Scenic Areas (NSA). We want to minimise the visual impact our overhead lines have on these sites.

How we did in RIIO-ED1
We examined the visual impact of our network in the landscape areas which are eligible for the RIIO-ED1 visual amenity incentive. We then collaborated with stakeholders to develop a range of visual amenity improvement initiatives. Using this fund, we focused on overhead lines that have the greatest level of impact in nationally designated and protected landscapes – and put them underground. Details of our visual amenity performance and initiatives to date are outlined on pages 9 and 10 of our Distribution Environmental and Innovation Report.

Our commitments and deliverables in RIIO-ED2

We will remove 35km of overhead lines in Areas of Outstanding Natural Beauty National Parks, and National scenic areas.

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4C.2 Promote an inclusive, skilled and community based workforce

The transition to Net Zero requires many changes to the way we work. We will need new skills, knowledge and capabilities to meet the future needs of our customers and communities. We must also maintain a sustainable workforce through inclusion and diversity and keep our relentless focus on the health and wellbeing of our people as we evolve.

Our RIIO-ED2 foundations

Throughout RIIO-ED1, we have proved that we have a strong track record in building a resilient workforce capable of delivering our plans. We have kept our focus on being a responsible employer as we delivered our commitments and began to evolve our workforce for the future. We recruited and developed our staff through our workforce renewal and trainee programmes during a period of unprecedented levels of retirement, brought forward by changes in pension legislation. At the same time, we have started our journey to build sustainability and environmental awareness and a digital-ready workforce, while providing continuous opportunities for leadership and skills development for our people.

Our RIIO- ED1 highlights:

95% of our craft roles and 75% of our core engineering and technical roles were filled through our trainee pipeline.

We have undertaken a full review of our craft programmes, incorporating new training in data and digital skills in addition to maintaining multi-skilling during the final stages of training.

We have successfully recruited 457 trainees into our range of workforce renewal programmes.

We have recruited our first cyber security graduate apprentices and data science graduates.

RIIO-ED2 will bring new challenges

As we accelerate towards Net Zero, our workforce will need to evolve to meet changing workload, technology, sustainability and portfolio requirements. Our existing workforce will need to become more agile and develop new skills and our workforce programmes will need to evolve to meet those new challenges. We will need to maintain our long-term pipeline to address an industry facing skill shortages and continuing high levels of retirement.

We are therefore committing to an ambitious set of actions. Throughout RIIO-ED2 we will invest in our people to make sure that we have the correct skills to deliver our plans, benefiting both our people and the communities we serve.

In this section, you will read about:

- The highlights of our ambitious new RIIO-ED2 Workforce Resilience Strategy which details how we will bridge the skills gap and maintain a resilient, sustainable workforce

- Our plans to create opportunities for our staff to develop new skills through development, upskilling and training plans aligned to our digital transition and Net Zero ambitions

- How we will continue our relentless drive to achieve a truly inclusive and diverse workforce through our recruitment processes and by supporting our people leaders

- The performance targets that will drive our progress and be used to hold ourselves to account

- How our RIIO-ED2 Workforce Resilience Strategy has been developed on the basis of robust assessment of the future needs of our customers, our people and our business plan considering the specific deliverability challenges like the large-scale digital transformation

- How our strategy ensures we meet the workforce needs identified through our deliverability assessment of our programmes or work and commitments

- How we will adopt new and innovative approaches to developing our workforce, including digital technology such as gamification of training and knowledge-based AI assistants for our people

- The capabilities, processes and systems we are putting in place to deliver our Workforce Resilience Strategy and related commitments.

You can find more detail in:

Annex 4C.4: Workforce Resilience Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with workforce experts through specific bilaterals, workshops and surveys as well as also asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

What our customers and stakeholders have told us is important

Make sure that we develop a workforce with the experience to deliver our Net Zero future through a structured approach to succession planning

Stakeholders shared the sentiment that we should be as ambitious as possible in building a diverse and resilient workforce.

Build an inclusive and diverse workforce by widening the pool of people who would traditionally have been attracted to engineering and increasing opportunities for disadvantaged groups

Stakeholders underlined our responsibility to contribute to reducing the gender and minority gap in the engineering profession. While welcoming our plan to provide Diversity & Inclusion training to senior leadership, stakeholders urged us to undertake further initiatives, such as partnering with institutions to make STEM subjects more appealing to minorities, developing a set of tangible measurables to monitor progress, and adopting a grassroots approach to diversifying our workforce by engaging with community champions/voices.

Provide training to ensure our staff have the knowledge and skills to support the evolving needs of our customers

Upskilling existing employees was considered by stakeholders as essential for us to achieve Net Zero and thrive in the digital age.

Operate in a way that first and foremost ensures safety for our staff and consumers and safeguards the mental and physical health of our workforce

Safeguarding the physical and mental health of employees was viewed as one of the highest priorities for us. Stakeholders welcomed our efforts to support employee mental health (such as mental health campaigns) and pointed out a range of additional initiatives that could complement existing activities. Suggestions notably include enabling employees to shape initiatives, appointing health and wellbeing advocates and partnering with charities.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our workforce plans will enable us to develop a workforce with the experience to deliver Net Zero, build an inclusive and diverse workforce, provide training to ensure staff have the required knowledge and skills and ensure the safety of staff and consumers.

We have **5 detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below

DS4 Growing our talent from the communities we serve through multiple inclusive workforce renewal programmes including social programmes to support disadvantaged groups into the employment pipeline.

DS5 Building a truly healthy, diverse and inclusive workforce through our recruitment, training and staff support programmes.

DS6 We will ensure our current and future workforce benefits from new and enhanced capabilities, to provide them with the necessary skills for the future.

Percentage of customers who support the commitments*.	*Household*	*Commercial*
	85.50%	**87.70**%

Percentage of customers who are willing to pay, at least the ED2 cost, for commitments in this topic area.	**82.00**%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

Recruiting for the future

We will recruit over 1,100 staff during RIIO-ED2, including more than 400 new roles, from our communities.

Our workforce strategy

Our Internal Stakeholders

We know how important this is to our customers, stakeholders and communities. We have also listened to our internal stakeholders:

Our staff have told us:

They have a clear understanding of what they need to deliver and that the company has high expectations of performance.

Co-workers provide support and ensure safe working, and our staff have felt supported by their line manager during lockdown.

It's important to have time to take advantage of job-related training opportunities.

We should take more opportunities to share ideas and resources across departments.

Our Trade Unions have told us:

Grow our talent by developing and investing in the workforce at all stages of their career through bespoke personal training and development.

Show commitment to investing in our workforce as individuals ensuring they feel valued and encourage leadership at all levels.

Engage with Trade Union partners and community organisations to attract new talent and reach a wider more diverse community.

Engage with apprentices and Graduates on key messages and show commitment to young workers by ensuring their voices are heard recognised and valued in the workplace.

Promote an inclusive and friendly environment at all levels of the organisation, encouraging innovative thinking.

Provide a positive working environment promoting good mental health as a guiding principle with all line managers fully trained in mental health awareness and dignity and respect at work.

Recognise and value the work carried out by our employees enabling them to work with confidence and independence.

Be treated with fairness, dignity and respect always and encourage a safe working environment to speak up and out at work.

.We have reviewed and tested our stakeholder engagement with our Customer Engagement Group. With support from them we have added additional stakeholders and explored more open questions on what is important for them. See Annex 2.1: Stakeholder Engagement for detail of our stakeholder and customer views on this topic.

Our track record

Through our workforce planning, we have successfully recruited 457 trainees into our range of workforce renewal programmes, forming our core pipeline of highly skilled engineering and technical staff and balancing our age profile, as can be seen in the graph below.

Balancing our workforce age profile

Age profile at the start of RIIO-ED1
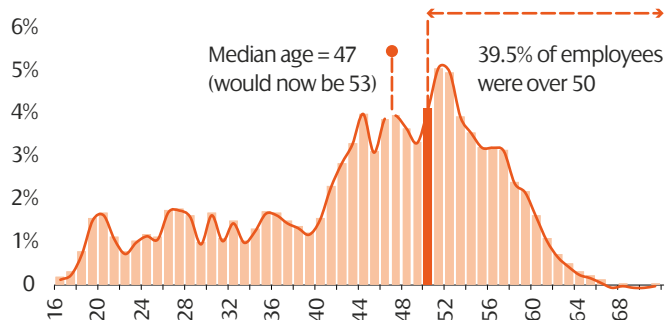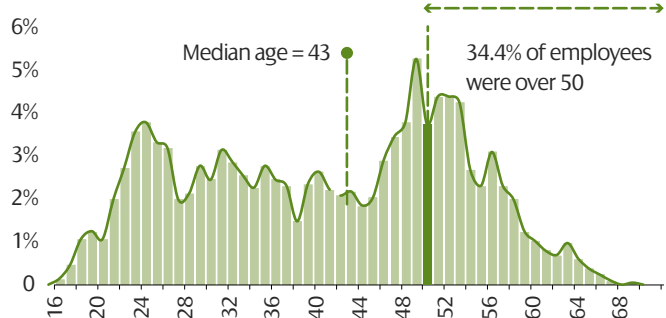
Median age = 47 (would now be 53)

39.5% of employees were over 50

Age profile 2021

Median age = 43

34.4% of employees were over 50

95% of our craft roles and 75% of our core engineering and technical roles were filled through our trainee pipeline. This was in the context of unprecedented levels of retirement amongst staff, brought forward by changes in pension legislation.

Our workforce renewal programmes are supported by a strong STEM and career guidance programme in schools and colleges. This feeds into our pre-employment programmes like our pre-apprenticeship, Year in Industry, vocational placements and scholarships.

We have also started our journey to build and sustain a digital-ready workforce through our programmes. We have undertaken a full review of our craft programmes, incorporating new training in data and digital skills in addition to maintaining multi-skilling during the final stages of training. We have also broadened our range of programmes, recruiting our first cyber security graduate apprentices and data science graduates.

We promote a results-oriented culture. At all levels there is a clear link between the achievement of the business plan, individual contribution, and annual salary increase and annual bonus.

In addition, we have a Share Incentive Plan which all of our employees are able to participate in. Share plans help employees feel part of the wider Iberdrola Group and highlight their responsibility to contribute to business success.

Developing future leaders

Leadership plays a critical role in shaping and delivering our future. During RIIO-ED1 we introduced our leadership journey map and developed programmes to improve leadership skills at every level.

We launched a Connected Leaders Community in 2020 to drive personal development, support, innovation and implementation of best practice. Our most talented staff completed a leadership potential self-assessment in 2020 and now have personal development plans to nurture them as future leaders.

Upskilling our employees

To date in RIIO-ED1, we have completed nearly 20,000 days of operational training for our staff, upskilled 65 Technical craftspeople and brought 43 people on to our trainee engineer programme.

In 2020 we introduced our first digital mentoring programme across Iberdrola and Scottish Power with nine participants from SPEN.

We have begun a substantial environmental training programme to ensure that all staff have the relevant knowledge to be able to competently manage environmental issues that they encounter in their daily work.

The strategic principles of our strategy:

We will use Just transition principles to develop and grow our workforce for the future

Grow our own core talent through multiple channels to be the modern workforce we need for our delivery plans

Inclusive recruitment from the communities we serve to build a diverse workforce

Attract new entrants into our industry through a wider range of channels and collaborative working

Safeguard the health and wellbeing of our people and support their needs as an inclusive employer

Full details of our strategy, plans and past performance can be found in Annex 4C.4: Workforce Resilience Strategy.

Diversity and Inclusion

During RIIO-ED1 we developed our Policy on Diversity and Inclusion and our Strategy to embed a more inclusive culture.

We launched Inclusion at ScottishPower – which includes a dedicated section of our careers site detailing our commitment to building an inclusive culture, employee-led networks, maternity coaching and have introduced our first Trans Policy.

We introduced mandatory unconscious bias training for all our recruiting managers and external auditing of our selection process, 16 of our recruiting managers have taken part in in-depth Inclusive Recruitment Workshops.

We have just delivered the fourth year of our award-winning Breaking Barriers partnership with commitment for a fifth year and are also about to embark on our fifth year of our STEM Returners programme.

Workforce Health and Wellbeing

Occupational Health

During RIIO-ED1 we delivered our Occupational Health plan and implemented and online Occupational Health Management process, developing a formal auditing strategy and occupational hygiene assessment and biomechanical monitoring.

Employee Surveys

We have LOOP and PULSE surveys which allow us to gather data from all or a cross section of our workforce on topical issues or emerging challenges allowing us to develop a risk management process to assess and manage the risk of fatigue for our workforce. During RIIO-ED1 they provided valuable insight into how our workforce were coping during COVID-19 lockdown providing us feedback on employee mental health and well-being, line manager support and communications. This feedback enabled us to provide targeted actions and is shaping our approach for future working.

Mental Health

During RIIO-ED1 we established a mental health and well-being steering group and trained 2% of our volunteer staff as mental health first aiders.

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Our commitments for RIIO-ED2

We will grow our own talent from the communities we serve through a blended approach of multiple inclusive workforce renewal, up-skilling programmes and direct recruitment, recognising the scale and timing of the increase in workforce and new skills

90% of our workforce renewal for our craft roles and 50% of our engineering and technical roles will come from our trainee programmes

We will work with our skills and academic partners on their range and content of training programmes to enable place-based recruitment of our trainees

We will employ Just Transition principles through a range of pre-employment and social programmes to support disadvantaged groups into the employment pipeline

Forecasting resource gaps

We will ensure our workforce has the right number of people, with the right skills, in the right location and at the right cost. Through a robust process of deliverability assessment, we have forecasted our workforce needs to deliver our plans. From this we have used our resource model with our retirement and attrition forecast to conduct a gap analysis between our requirements and forecasted headcount within different disciplines.

We have analysed which future skills will be needed and changes to existing roles. We have used this to identify critical capabilities and talent gaps, and to create the action plan to close these gaps.

We identified five key future skills areas:

1. **Data and digitalisation**

2. **Sustainability (environmental, social and economic)**

3. **Customer and commercial services**

4. **Whole system co-ordination (engineering)**

5. **Telecoms and networking**

Further detail on our Future Skills can be found in: Annex 4C.4: Workforce Resilience Strategy

Digital skills

Becoming a digital business requires leadership, solutions and targeted training.

We'll measure digital skills across our business and deliver appropriate programmes to upskill staff and recruit new skills, by expanding our programmes in new disciplines such as data science and cyber security. We will 'grow our own' talent, and supplement this with external recruitment of specialist skills. We will support our people to make sure that nobody is left behind in our digital transformation, for example through our digital mentoring programme to share skills and provide support amongst our internal talent.

Further detail on our strategy for digitalisation can be found in Annex 4C.1 Digital Strategy

Our resourcing plans

We identified a significant need to bring in new resources in both traditional and new roles, giving us a clear view of where and when to invest in staff development and recruitment.

Full details of our planned recruitment and how we will bridge the skills gap and maintain a resilient, sustainable workforce are detailed in Annex 4C.4: Workforce Resilience Strategy.

To support our recruitment, it is vital that we engage and attract new entrants and skills to our industry and therefore we are creating inclusive programmes and are supporting STEM activities in schools and colleges.

To ensure that our reward offer remains relevant in the market, we conduct an external benchmarking exercise annually, to consider the competitiveness of our total reward offer, subject to affordability. This review takes into consideration a range of factors such as the experience of recruitment and retention, new skills requirements, and external evidence regarding skills availability in the markets in which we operate.

We will continue to promote a results-oriented culture at all levels so there is a clear link between the achievement of the business plan, individual contribution, and annual salary increase and annual bonus.

Each of our Directors has an objective for customer service and the measurable outputs are weighted depending upon their responsibilities. The objectives of the Customer Service Director who has responsibility for every aspect of the customer experience, are the highest weighted for customer service.

Staff participate in our performance related pay and annual incentive plan. Entitlement to a bonus is linked to achievement of objectives set at a business and personal level which are also influenced by customer service. It is also important to note that delivery of customer service is underpinned significantly by investment delivery in the form of outputs which are directly incentivised through the price control.

The company reports annually to Ofgem in a statement in the linkages between Directors pay and standards of performance in accordance with Section 4C of the Electricity Act 1989.

We will create opportunities for our staff to develop new skills through development, upskilling and training plans aligned to our digital transition and journey to Net Zero

Personal leadership development plans for our future leaders

Maintain our current skills through established training and refresher programmes

Annual internal trainee programmes in Technical Craft and Engineering to provide a route for staff progression

Digital upskilling across our workforce in-line with digital advancements during the period of RIIO-ED2

As part of the specification and design of any new system we will integrate training to ensure the successful upskilling of staff and adoption and utilisation of the system

Environmental and sustainability upskilling across our workforce to embed sustainability into our day to day activities

We will focus on 3 areas:

1. Maintaining core activities and current skills through our upskilling and trainee programmes

2. Build our leadership capabilities to support agile change management and lead the digital transformation

3. Develop the Future Skills in the five key future skills areas, responding to the demand for technical expertise and skills.

We'll create opportunities for our staff to develop new skills in their current roles and in new areas. We'll use technology to improve training such as augmented reality and gamification. Technologies like knowledge-based AI assistants and adopting new digital ways of working will lead to gains in productivity.

We will continue our long-standing commitment to safeguard the physical and mental health and wellbeing of our people

We will engage with staff and implement actions plans from their feedback through our LOOP survey every two years and on specific topics through our PULSE surveys

More than 95% of the actions from our Annual occupational health and hygiene improvement plans will be delivered

We will increase the number of our mental health first aiders to match the 1:25 standard established for First Aiders by 2024

We will focus our efforts in three areas:

1. **Training** – increasing the number of mental health first aiders

2. **Education** – educating staff in workplace hygiene hazards and control measures. Going beyond statutory requirements, we will promote fitness and health as a lifestyle choice

3. **Monitoring and Surveillance** – carry out hygiene monitoring of hazards in the workplace and delivery of all our statutory health surveillance requirements through an annual programme of delivery that is measured and monitored.

We will continue our relentless drive to achieve a truly inclusive and diverse workforce through our recruitment processes and by supporting our people leaders

By the start of ED2 all programme and high-volume recruiting managers will complete the Inclusive Recruitment Workshops programme, all remaining managers will complete during the period

We will apply inclusive recruitment practices to all trainee programmes transparently auditing and reporting on applicants by 2024 and extend to all internal and external vacancies by 2026

All senior and high potential leaders will complete Inclusive Leadership Training by 2024, with this becoming the standard for all our people leaders during RIIO-ED2

By 2025, all our people leaders will have completed D&I Legal training

We will simplify and enhance our family friendly policies in line with our commitment to be an inclusive employer by 2025

By 2024 we will review and develop a plan to update all our training materials and workforce manuals with gender neutral language and ensure accessible for all during the period of RIIO-ED2

Our strategy for embedding a more inclusive culture is focused on three areas:

1. **Engagement and awareness** – telling the diversity and inclusion story through the eyes of our employees and customers to inspire an inclusive mindset

2. **Inclusive leadership** – delivering tools and programmes that support leaders on self-awareness and understanding their role in building an inclusive culture

3. **Policies and approaches** – formalising policies and approaches that build a more inclusive culture.

We will embed a digital and sustainable culture within our workforce

Deliver a digital cultural change programme during the period of RIIO-ED2 ensuring our people recognise the importance of data and digital skills

Support our people in this transition by equipping them with the right digital skills

Expand our graduate programme and recruitment policies to focus on digital talent

Use digital technology such as knowledge-based AI assistants for our people

Embed sustainability within our day to day business activities

Embed environmental responsibilities within line management roles and responsibilities

Ensure our sustainability culture is led by senior management

We will continue to engage with our Regional stakeholders to develop our workforce resilience commitments.

Common metrics for workforce resilience have been developed as part of a cross-DNO working group. **The initial three areas that have been agreed are:**

- Workforce Satisfaction

- Diversity and Inclusion

- Mental Health within the workplace

We will continue to work with other DNO's to develop consistent workforce resilience metrics in the remaining areas. These will complement our existing metrics.

For further detail on all our workforce plans and metrics see Annex 4C.4: Workforce Resilience Strategy

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4C.3 Embed digitalisation and utilise data to unlock benefits for customers and stakeholders

Digitalisation and the better use of data are critical for the modernisation and decarbonisation of our energy system. They are also central to the delivery of our RIIO-ED2 business plan commitments. By putting digitalisation and data at the heart of our plans, we will deliver a modern digitalised energy system capable of improving the services we provide to our customers and stakeholders whilst supporting a just transition. We will invest in solutions that enable us to achieve efficiencies and represent value for money for our customers.

Our RIIO-ED2 foundations

During RIIO-ED1, we laid the foundations for our digital transformation. We published our first Digitalisation Strategy, consolidated our core digital platforms and established a new 'Centre of Excellence' and 'IT Digital hub' to create the capability to transform our organisation. We also delivered a programme of continuous improvement and trialled innovative solutions that will prepare us for the challenges of RIIO-ED2.

Our RIIO- ED1 highlights:

We successfully implemented our Network Asset Management System
We have established our customer service platform for the future
We have introduced flexibility products to manage constraints
We have established our internal capabilities to support our digital transformation
We have developed our Energy Data Hub (https://www.spenergynetworks.co.uk/pages/energy_data_hub.aspx)

RIIO-ED2 will bring new challenges

Significant increases in distributed energy resources and the electrification of transport and heat will dramatically expand load on our network, particularly our 'last mile' low voltage network that is not designed to cater for this high utilisation and is therefore less resilient to the expected change. To address this, we will need to manage vast increases in volume and frequency of data from technologies such as remote sensors, Internet of Things (IoT) devices, wearable technology and drones.

In addition to this, customer expectations have changed through using digital services in all aspects of daily life and work – our customers expect digitally enabled channels and self-service options for interacting with us. We will deploy new solutions and working practices across our business to support this. Beyond this we must also ensure that we open up our data; this is crucial to enabling new business models and markets that will benefit our customers.

In this section, you will read about:

- The highlights of our ambitious new RIIO-ED2 Digitalisation Strategy

- How our RIIO-ED2 digitalisation and data plans have been developed based on our learnings from RIIO-ED1 and effective engagement with our customers and stakeholders

- How investing in our digital transformation will unlock significant customer benefits and efficiencies

- The capabilities, programmes, processes and systems we are putting in place to deliver our Digitalisation Strategy.

You can find more detail in:

Annex 4C.1: Digitalisation Strategy
Annex 4C.2: Data Strategy

Co-creating our RIIO-ED2 plans with our customers and stakeholders

We have engaged more than 15,000 customers and stakeholders in our biggest ever engagement exercise to build our RIIO-ED2 plan. For this topic we engaged with digitalisation and data experts through specific bilaterals, workshops and surveys as well as also asking customers and stakeholders for their views as part of the wider engagement programme. Their views have directly shaped our proposed commitments in this area.

Our Digitalisation Strategy and Data Strategy annexes provide details of personas we have identified as relevant to our digital and data ambitions and describe how our plans meet their requirements.

What our customers and stakeholders have told us is important

Use digital technology to manage our network in a smarter, more sustainable way

Stakeholders stated that sophisticated monitoring and control of the electricity network will be essential as we move towards a low carbon energy system.

Share network data so that we can manage the network more efficiently and work more closely with the communities we serve

Stakeholders believe that data should be a focus for DNOs as this plays a key role in enabling flexibility, decarbonisation, better grid management and investment while improving services to customers.

Improve our customer service by giving our customers more choice including new channels, new self-service options for interacting with us and supporting our most vulnerable customers

66% of domestic and 87% of commercial customers expect us to know their preferred communication channel. Vulnerable customers accessible and preferred contact channels are particularly important.

Equip our own people with new skills to accelerate our digital transformation, and expand our recruitment programmes to focus on new disciplines such as data science and cyber security, creating high quality jobs in our communities.

Stakeholders were clear on the need to nurture and retain existing staff, through development and upskilling in RIIO-ED2. They suggested the risks in making data more widely available are minimal and stated that these can be mitigated via secure data control and effective governance. 66% of both commercial and domestic customers agree that they trust us to look after their data.

Our Digitalisation Strategy and Action Plan will be updated and published throughout the RIIO-ED2 period based on customer and stakeholder feedback.

How customer and stakeholder feedback has shaped our plans

Based on our customer and stakeholder feedback we are committing to an ambitious set of actions. Our digitalisation and data plans will enable us to create a modern digitalised energy system, capable of supporting a Just Transition. We will develop the skills and capabilities to maximise the value of data and drive efficiency into our operation for the benefit of our customers and stakeholders.

We have 3 detailed commitments in this area that we have tested with customers and stakeholders. These commitments are detailed in this section, and are summarised below.

DS7	We will transform our customers' experience, increasing access for market participants and delivering our plan efficiently through an ambitious programme of digital initiatives
DS8	We will fully harness data as an asset, to improve our decision making, operations, customer services, whole system solutions and innovative ways of working
DS9	We will protect the security of our customers and operations by meeting best practice cyber security standards for businesses and critical national infrastructure

Our digitalisation strategy will underpin many other commitments, including:

DS6	We will ensure our current and future workforce benefits from new and enhanced capabilities, to provide them with the necessary skills for the future
NZ2	We will deliver £84m of savings for our customers by embedding learnings from our innovation projects into BAU and adopting best practice from successful industry trials
NZ3	We will facilitate a neutral market for flexibility and embed whole systems thinking through our evolving Distribution System Operator role.
NZ5	We will Invest in our network to increase its reliability such that customers will be 15% less likely to experience an interruption and the average duration reduced by 10%
TP1	We will deliver a proactive, tailored customer contact process through enhanced methods to ensure fast response times. We will always contact them In a language and channel of their choosing providing greater levels of information, and reliably delivering services
TP3	We will help customers capitalise on the benefits of the energy transition by delivering advice services to 40,000 customers who register with us to help reduce costs, drive efficiency and access the benefits of low carbon technologies

Percentage of customers who support the commitments*.	*Household*	*Commercial*
	89.80%	**84.40%**

Percentage of customers who are willing to pay, at least the ED2 cost, for commitments in this topic area.	**82.60%**

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

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What is digitalisation?

A digital transformation, or digitalisation, is a radical re-imagining of how an organisation uses technology, people and processes to fundamentally change how it operates, and is typically undertaken in pursuit of new business models or revenue streams. The drive for digitalisation can come from changes in customer or stakeholder expectations, competitive pressures or by external disruptions such as regulatory change, sustainability or environmental factors.

What is data?

Data are facts and statistics collected together in an accessible digital format. For the energy system, data can describe the network and assets, its operation (current, historic and forecast), condition and capacity. It can describe market operations, policy and regulation (Source: The Energy Data Taskforce). Data has revolutionised the way many sectors operate. From healthcare to finance, data is acting as an enabler for change. The energy sector has been slow to harness the potential that data offers and has, in some ways, been left behind.

What does it mean to us?

Digitalisation and the better use of data present a significant opportunity for us to drive modernisation and decarbonisation of our energy system. By collecting and analysing data and using technologies like digital twins, we will build a far more detailed understanding of our network's capacity to support the connection of low carbon technologies and facilitate decarbonisation of transport and heat through the use of flexibility services. We will have full visibility of our customers' decarbonisation journeys to ensure we enable a just transition where no-one is left behind. New digital technology and data will help us to make our own operations more efficient, which in turn will save our customers money on their bills. Furthermore, we believe that building a digital and sustainable business will help to drive better engagement and opportunities for our people.

The context for energy system digitalisation

We recognise that meeting the UK's Net Zero target will require whole systems thinking and cross industry collaboration. We have identified the key programmes of work centred around the Energy Data Taskforce Report published in 2019 and how our digitalisation and data strategies fit into the overall landscape. We are actively engaged on several of these industry initiatives and currently chair the ENA's Data and Digitalisation steering group. A core part of our digitalisation strategy for RIIO-ED2 will be to identify further opportunities for cross sector collaboration.

Our readiness and capability to transform

Our RIIO-ED1 programme is well underway and provides a foundation for our RIIO-ED2 plan. We have:

Invested in our asset management systems. Our Network Asset Management System is the primary suite of business systems used in the day-to-day management of our assets. Our Condition Based Risk Management system drives our investment planning. Our implementation of Building Information Modelling for our large projects is underway. And we are piloting the use of technologies such as aerial LiDAR and drones for asset inspections.

Developed a customer service platform for the future. Our online customer connections portal is live and provides the basis for the development of enhanced customer and stakeholder engagement platforms.

Facilitated the development of flexibility products. We are operating flexibility products and trialling new and innovative ways to facilitate the ongoing development of flexibility markets.

Piloted approaches to facilitate decarbonisation. We are developing pilot projects to understand how we can best support our customers in their decarbonisation journeys.

Established our internal capabilities to support our digital transformation. We have invested in the capabilities we need for our digitalisation ambitions and are using these to deliver agile solutions that capture benefits early and incrementally.

Best Practice and New Developments	Needs and Requirements	Our RIIO-ED2 Strategies and Plans
Modernising Energy Data (Energy Digitalisation Taskforce)	Our Customers	Connections
Data Best Practice Guidance (Ofgem)	Our Stakeholders	Distribution System Operator
Coordinated Asset Registration (BEIS)	Driven by	Customer Service
Modernising Energy Data: Access and Applications (Innovate UK)	**Digitalisation Strategy** / **Data Strategy**	Vulnerability
Digitalisation Strategy and Action Plan Guidance (Ofgem)	Collaborates with	Environmental Action Plan
Energy Data Visibility (BEIS)	Industry and Stakeholders	IT and OT Cyber Resilience
	ENA Data & Digitalisation Steering Group	Workforce Resilience
	ENA Open Networks	Innovation

Builds upon → Digitalisation Strategy / Data Strategy → Enables

Based on our digital maturity assessment and our RIIO-ED2 business plan, we have developed an ambitious future vision to illustrate the role that digitalisation and data could play in improving services to our customers and stakeholders, and improving our business operations in RIIO-ED2 and beyond. Our Cost Benefit Analysis for our data and digitalisation plans is in Annex 4A.23: EJP and CBA Index.

Area	Future digital vision for ED2 and beyond	Benefits
Capital projects & Asset management 	• **Digital twin** used for network planning and 'what if' scenario modelling • **'In day' intelligence available** on project delivery status • **>75% of materials can be digitally tracked** through the supply chain	• **Avoided cost** of internal workforce increase • Further efficiency through scenario testing and optimised intervention planning
Field Operations 	• Dynamic scheduling of field work • Asset data capture simplified and **data quality improved** • Use of immersive digital methods for training (AR, VR) • **Image analytics** used to automate processing of inspection data collected by drones	• **Capability to manage significant increase** in connection requests expected in RIIO-ED2 • Enhanced capability to deliver increased volumes of work, particularly at Low Voltage
Network planning & control 	• LV sensor **data used to predict outages and system stability** • Fault location and response time **increased** • **AI used to monitor alarms and alerts** and automate interventions • **Operational digital twin** used for network management, training and 'what if' scenario planning	• Manage the expected 15% increase in peak demand • **Facilitate the connection** of up to **1.5 million** EVs by 2030 and up to **0.9 million** heat-pumps by 2030
Distribution System Operations 	• Network visibility and insights from wide-scale monitoring across our LV network • Near real time forecasting available, **using AI and machine learning** • Fully integrated flexibility platforms with **API based data exchange**	• Enable uptake and execution of flexibility services • Manage network constraints and **reduce costs** through active demand and generation management in **22 new Constraint Management Zones**
Customer and stakeholder management 	• Self-service digital channels for connection requests • Faster responses to customer enquiries using AI • Improved support for vulnerable customers through new AI based services	• Ability to respond to **100% increase** in customer contact volume (Estimated) • Effective support for **20% increase** in vulnerable customers by 2028 (Estimated)

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Our approach to delivering digitalisation

We first published our Digitalisation Strategy in 2019 and updated it in 2020, recognising the critical role that data and digitalisation will play in the decarbonisation of our energy system to meet the UK's increasingly ambitious Net Zero targets.

Our customers and stakeholders are at the centre of our digitalisation plans. We have tested our proposals and shaped them through engagement. Continuous engagement is critical to our plans so we will launch a new digital engagement and collaboration platform to provide better ways for customers and stakeholders interact with us in the future.

We will support our vulnerable customers and the digitally disengaged, and will enable customers and stakeholders to view and influence our Digitalisation Strategy and Action Plan.

Our investment plan and how we will deliver

Optimised asset and network management

Why we are doing it:

Digital technology can significantly increase the productivity of our field operations and support better decision making when planning the work needed on our network, reducing costs for customers and lowering our carbon footprint.

What we will do:

- Development of digital twins to enable better decision making (a digital twin is virtual representation of a physical object or process that simulates relevant aspects of behaviour to enable forecasting, scenario modelling and optimisation)

- Deployment of advanced field technology such as wearables (i.e. smart technology that can be worn similar to a fitness tracker)

- Automation, fault location technology and predictive analytics to increase network resilience and accelerate our response to outages

- Digitalise our inspection regime using aerial LiDAR and drone footage image processing technology, using the lessons we learn during our ED1 pilot projects

- Optimise and automate our processes for capital project delivery, enabling us to deliver a higher volume of work more efficiently.

Our strategy has 6 key building blocks underpinned by 3 enablers

Our digitalisation strategy
Facilitates the delivery of our RIIO-2 programme

Optimised asset and network management
Autonomous operation, instrumentation, asset lifecycle management, digital twins, field-based solutions.

Developing options to manage peaks in load
Active LV network, influencing behaviour beyond the meter, DSO, whole system.

Supporting the development of new business models & markets
Flexibility markets, development of an energy technology sector, driving focus on environmental initiatives.

Investing in the digital skills of our people
Embrace a digital culture, support workforce transition.

Improving mastery of our data
Data governance, data sharing, integrated reporting & analytics, artificial intelligence.

Using digital technologies to deliver enhanced customer service
Single view of the customer, digital channels, self-service solutions with intelligent support agents.

Cyber secure
We will ensure that we understand the risks and threats to our systems, data and information and protect these with proportionate measures.

Robustly Governed
We will apply governance procedures to our digitalisation activities, ensuring we consider and mitigate risks and deliver maximum benefit to our stakeholders and customers. We will ensure deliverability of our plans from initiation to established operation, take agile approaches to realising benefits early and adopt a culture of continuous improvement through measurable indicators of success. We will seek opportunities to collaborate with others and drive for efficiency in everything we do.

Stakeholder Driven
We will be transparent in delivering our activities, sharing updates and inviting and reacting to feedback received.

Developing options to manage peaks in load

Why we are doing it:

The rise of distributed energy resources, and the electrification of transport and heat will result in a significant expansion of load on our low voltage network. We need to manage this load increase using a combination of traditional engineering and new digital solutions to reduce costs for customers and enable the low carbon transition.

What we will do:

- Deployment of advanced digital monitoring and control equipment on our low voltage network including 14,000 monitors at 50% of our local substations

- Development of 10 constraint management zones in SPD and 12 in SPM enabled by data and digital solutions

- New technology to enable new choices for our customers 'behind the meter' to support the low carbon transition.

Supporting the development of new business models and markets

Why we are doing it:

Reaching Net Zero will require alternatives to traditional working practices such as network reinforcement. By adopting an open, collaborative approach across the ecosystem we will harness innovation to lower costs for customers, accelerate the low carbon transition and take steps on our journey towards becoming a DSO.

What we will do:

- Development of flexibility markets and solutions

- Active participation in cross industry initiatives to identify and develop whole system solutions

- Building partnerships with other participants in the ecosystem such as academia, third party organisations and innovators

- Sharing operational and market data with our customers, stakeholders and market participants through an online data portal.

Cyber Security

We recognise the value of data as an asset, but also the resultant risks that this can pose from an information and cyber-security perspective. We have developed a comprehensive Cyber Resilience IT Plan to support the delivery of our data and digitalisation strategies, ensuring that we apply appropriate and proportionate measures to the management of our electronic estate.

Whole Systems

Digitalisation and data is fundamental to the delivery of our Whole System Strategy. The sharing of energy data will facilitate the coordination required to transition the UK energy system to a low carbon system. We will adopt a collaborative approach to supporting the development of a digital ecosystem for energy that will underpin the delivery of the UK's Net Zero ambitions.

Improving mastery of our data

Why we are doing it:

Data can improve our decision making, operations and customer services. Sharing data with others will lead to better whole system solutions and innovative ways of working.

What we will do:

- We will introduce enhanced data governance across each of our business areas

- Deploy fully integrated reporting and analytics using a new big data platform

- Utilise enhanced data capture to maximise the value of our digital twins

- Implement recommendations from the Data Best Practice Guidance, enabling open data sharing.

Using digital technologies to deliver enhanced customer service

Why we are doing it:

Our Connections Strategy describes the changes we anticipate during RIIO-ED2 including a five fold increase in connection requests. Digital technology can significantly improve customer service by providing more choice for our customers and by accelerating the delivery of our services. It also helps us serve our most vulnerable customers, ensuring they are not left behind by the energy transition.

What we will do:

- We will build a single view of our customers and our interactions with them across different services

- Open new digital channels and develop self-service options for key customer journeys to give our customers more choice

- Implement a customer data portal, customer data line and build on our strong governance of our vulnerable customer data (PSR)

- Develop a suite of digital tools capable of supporting the anticipated significant increase in the volume of connection enquiries.

- Supplement our workforce with virtual support agents, taking care to ensure that all of our new services and channels are tailored for our vulnerable customer base

- Our digital customer service will be fully integrated with non-digital solutions, ensuring that the digitally disengaged are not left behind.

In RIIO-ED2 we are committing to:

We will create a new Digital environment to underpin our future plans and strategies.

We will use technology such as Machine Learning, AI, VR/AR, Robotic Process Automation, Drones, edge computing, new communication channels, cloud technology, and improved Data analytics.

We will track, measure and publish our progress via the DSAP, at 6-month intervals, and provide a full refresh every 2 years.

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Maximising the Value of Data

Our vision is to put data at the heart of our operation, creating a solid and insightful base for our decision-making, operations and performance improvement as we deliver our RIIO-ED2 ambitions.

RIIO-ED2 will see a dramatic increase in the volume, velocity and breadth of data required to operate a modern digitalised energy system. Good quality, reliable data will enable us to respond to the challenges of Net Zero, facilitate the connection of high volumes of low carbon technologies, and integrate solutions across the wider energy system. Our Data Strategy provides the framework to allow us to maximise the value of data throughout our organisation and the wider energy system.

Our Data Strategy is customer and stakeholder led and includes our approach to implementing the Data Best Practice Guidance (DBPG) including how we will open up access to the energy system data we hold. Our strategy describes how we will understand and respond to the data needs of our customers and stakeholders whilst continuing to protect and secure the information assets appropriately.

Intelligent data capture

Why we are doing it:

Automating data capture will improve data quality by improving accuracy, frequency, and completeness. Using technology to support enhanced data capture will enable our employees to focus on more complex activities, and result in higher quality data captured at lower cost.

What we will do:

- We will deploy technologies such as sensors, IoT devices, drones, GPS-enabled devices, LiDAR scanners, wearable technology, smart tags, smart meters, social media analytics and voice recognition.

- We will use edge computing (processing data closer to source, reducing information lag) to process high volumes of data generated by these technologies, enable validation at the point of capture and facilitate real-time analysis.

- We will provide innovative mechanisms to support manual data capture such as context-sensitive data entry and photo capture, voice commands, autofill and scanning, our people will find it easy to record detailed data on their work – increasing our efficiency and productivity for the benefit of our customers.

- Data from all our business activities will be fed into our core systems of record, ensuring that we have high quality, timely, consistent, relevant, complete, and accurate data.

Our Data Strategy

Our Data Strategy (Annex 4C.2) provides more detail on our approach to maximising the value of data, including our assessment of our current maturity against the DBPG.

Our Data Strategy has 6 data priorities

Our data strategy enables us to maximise the value of data

Intelligent Data Capture
Enabling effective data capture (internal and external) covering a variety of data types and domains including the use of edge computing for near real-time analysis

Digital Twin & Decisioning
Develop a data ecosystem for representing, understanding, simulating, forecasting and autonomous decision making

Reporting & Analytics
Trustworthy, descriptive, self-service reporting and analytics solutions which support data driven business decision making.

People & Culture
People are able to operate effectively in a data driven business, critical data skills are available at the right level to run and change the business.

Data as an Asset & Service
Quality data is accessible at the point of need enabling new business models and propositions to flourish; witheffective data interoperability including high volume, repeatable requests as a fundamental part of our high functioning energy ecosystem Full compliance with the data best practice requirements and the implementation of a "presumed open" approach to energy data.

Data Governance & Risk
Data principles and practices underpin a high performing energy business of the future, with data at its core, and robust risk management capabilities to protect against the existing and emerging challenges of operating a digitised energy system at scale.

Reporting and analytics

Why we are doing it:

To achieve our data vision, we will create an integrated reporting and analytics solution. This will enable us to generate insights across a range of data domains covering all aspects of our operations.

What we will do:

- We will enhance our capabilities to analyse data and create insight that will drive efficiency in our business.

- We will deploy the reporting and analytical tools that will enable data to be integrated and served to our workforce using visualisations appropriate to their tasks. Data will become the evidence base upon which all our decisions are taken, enabling us to optimise our efficiency, measure our progress and monitor our delivery.

- We will improve our customer reporting capability to enable us to provide better levels of customer service, including for vulnerable customers and the digitally disengaged.

Digital twins and decisioning

Why we are doing it:

Digital twins are an important emerging technology for asset intensive businesses, improving decision making and 'what if' scenario planning to drive better whole system outcomes for our customers and stakeholders.

What we will do:

- We have already started work on our 'Smart Data Integration Fabric' project to build a trusted, multi-purpose and reusable digital master model of our network and develop new approaches for fault location and constraint identification

- We have also developed our 'NAVI' and 'Engineering Net Zero' platforms based on our integrated network model which we will develop further, complemented by additional real time datasets

- We will continue to develop these platforms and identify new pilot use cases to iterate our digital twin capability, working with partners where necessary

In RIIO-ED2 we are committing to:

We will create a data strategy which enables us to manage an increased volume, velocity and breadth of data, supports the move towards active management of the LV Network, facilitates the creation and operation of new models and markets, drives maximum value from the data we master in combination with new external datasets, and enables a collaborative approach to energy data sharing with external parties.

In order to achieve this we will look at new technology to capture and analyse the data, this will include IoT, edge computing, mobility solutions, machine learning, AI, big data platforms and data analytic tools. We will collaborate with Ofgem, the ENA and other external organisations through the sharing and exchange of data, proactively evolving our data strategy in line with the requirements of external stakeholders.

Data as an asset and service

Why we are doing it:

We recognise the value of data as an asset in the delivery of our RIIO-ED2 programme, providing the mechanisms for us to forecast outcomes, establish targets, monitor progress and respond to evolving challenges. This approach will also enable us to ensure our plans are deliverable (see Chapter 6).

What we will do:

- Our business chairs the ENA's Data and Digitalisation Steering Group and we will continue to demonstrate leadership in our approach to implementing the 'presumed open' approach to data.

- We will embrace the Data Best Practice Guidance to enhance sharing of data, supporting our customers and stakeholders on their path to Net Zero.

- We will continually assess our use of data throughout our organisation and processes to ensure we are maximising the value derived from it.

Governance and risk

Why we are doing it:

We have many data domains across our business. Some, like data about our assets, are well established and have effective governance processes. Others are evolving, such as data about the operation of the low voltage network and environmental metrics, and these also need sufficient risk controls in place.

What we will do:

- We will implement policies to establish discipline around the management of data during its lifecycle and across our operations

- We will ensure we have the appropriate mechanisms to manage data and information security, privacy, quality, retention and availability, particularly in the context of exposing access to energy data

- We will develop enhanced approaches for continuous improvement of data, including monitoring, measuring and data quality interventions.

- Our governance approach will include oversight of our implementation of the Data Best Practice Guidance. In particular, we will establish our data triage process to ensure that risks associated with data sharing are carefully considered and mitigated. We will ensure that our customers and stakeholders are fully engaged in our open data implementation.

- Our Cyber Resilience IT Plan describes the approach we will take to manage cyber risk and apply appropriate and proportional controls to mitigate any potential impact.

In RIIO-ED2 we are committing to:

We will operate a risk-based approach to the management of vulnerabilities and threats to the cyber-security and resilience of our IT and OT estate and data. We will continually assess our current position, review the threat landscape and create action plans to apply proportionate technical and organisational mitigation steps. We will coordinate our IT and OT related cyber-security activities to ensure robust protection of our electrical networks.

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How will we deliver our plan:
Our digital roadmap

We know that we have a significant programme of work ahead of us to deliver our digitalisation and data vision. We have developed an iterative roadmap that sets out the stepping stones for each of our products and services between now and 2028. We will not wait until RIIO-ED2 starts to begin delivering our plans and we have identified several enablers that we will start work on immediately to deliver value sooner for our customers, stakeholders and our people.

Digitalisation and Data

Our Digitalisation Strategy provides the solutions that will deliver our Data Strategy. Our Data Strategy establishes the framework to ensure that we carefully collect, manage, share and extract maximum value from data.

Together, these two strategies underpin the breadth of our RIIO-ED2 programme, providing the mechanisms to deliver our ambitions in alignment with the recommendations from the Energy Data Task Force's report on "A Strategy for a Modern Digitalised Energy System".

The benefits of investing in digitalisation and data

We have undertaken initial modelling of the benefits of investing in our digitalisation and data plan which indicates a range of £33m – £195m of net benefits over the RIIO-ED2 period. Digitalisation is integrated across our RIIO-ED2 business plan and supports delivery of many of our business plan commitments. We have identified several key benefits that can be unlocked through data and digitalisation:

Deploy technology-enabled solutions, such as online monitoring and active network management to enable Net Zero

Share network data so that we can manage the network more efficiently and work more closely with the communities we serve

Use digital technology to manage our network in a smarter, more sustainable way

Improve our customer service by giving our customers more choice including new channels, new self-service options for interacting with us and supporting our most vulnerable customers

Equip our own people with new skills to accelerate our digital transformation, and expand our recruitment programmes to focus on new disciplines such as data science and cyber security, creating high quality jobs in our communities
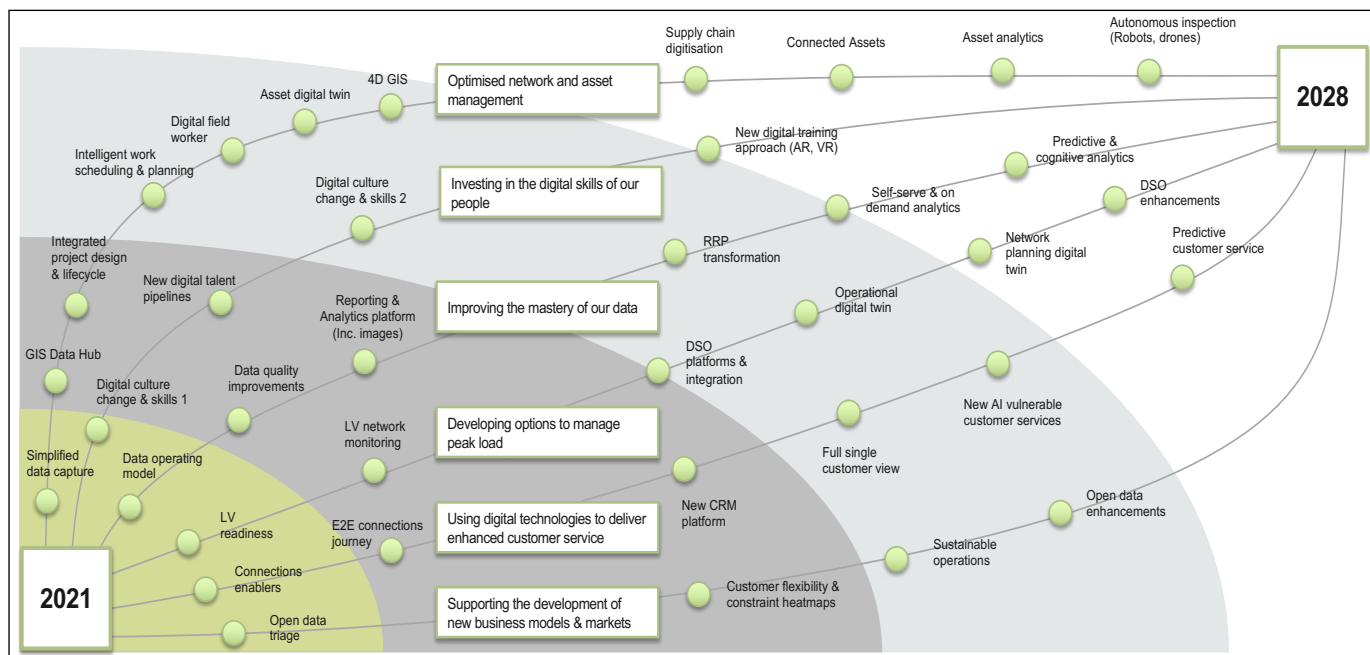
Note: The milestones indicate the completion of a mature product or service. We anticipate agile development work will start ahead of the milestones shown above and go through several iterations.

Strategy building block

Digital enablers (2021 – 2022)

Digital foundation (2023 – 2024)

Digital operations (2024 – 2026)

Digital core (2026 – 2028)

Milestone

Our expenditure, incentives and finance

In Chapter 4 you have read about our detailed plans under each of our three strategic pillars for RIIO-ED2, and the commitments we make to our customers and stakeholders to deliver what they have asked us to.

In order to deliver on our commitments to customers, we must make full use of the regulatory framework available to us, ensuring that we have sufficient funding to deliver on our priorities in an efficient manner, and agreeing a level of flexibility in the framework to enable us to adapt and react to any changes in our customers' and stakeholders' needs.

In this chapter

Part A: Pg138
Our expenditure plans

We outline our expenditure plans, how we have tested our plans for efficiency, and the changes in our programmes between RIIO-ED1 and RIIO-ED2.

Part B: Pg151
Managing uncertainty

We set out how we will remain agile and able to react to the rate of change forecast for the UK in the transition to Net Zero. Our ability to manage uncertainty will play an important role in meeting the emerging needs of our customers and stakeholders.

Part C: Pg156
Embracing the regulatory framework

We provide an overview of our incentive mechanisms, and how we will go further through our CVP's and ODI's to deliver enhanced benefits to our customers and stakeholders.

Part D: Pg161
Financing our plan

We provide a summary of our financial metrics, including our assumptions on Cost of Equity, Cost of Debt, Notional Gearing and Efficiency, as well as an overall financeability assessment.

5

Our expenditure plans

As we move towards decarbonisation and Net Zero, we will need to make significant changes to our network to facilitate the level of growth forecast by both UK and devolved administrations, and to allow our customers and stakeholders to meet their aspirations.

RIIO-ED2 will require significant investment in our network assets to ensure they are capable of supporting the level of connections which are forecast in the UK, to facilitate our transition to Distribution System Operator (DSO), and to improve our digitalisation platforms which we need to monitor our network of the future and to provide the service levels expected by our customers.

We must also invest in developing our people to make sure they have the tools and support needed to optimise our network design and operation, so we can fully realise the benefits of decarbonisation.

With this increase in our workload, we will need to invest in enhanced automation techniques to deliver efficiently. Training and deployment for these will need to be completed quickly, so we can continue providing customers with the industry-leading service we have demonstrated during RIIO-ED1.

The scale of the change required during RIIO-ED2 brings with it an increased level of uncertainty, which stems from how quick the transition to Net Zero can and will be achieved. We outline in our Chapter 5B on "Managing Uncertainty", how the price control framework should enable us to adapt during the price control period, and mitigate the impact of uncertainty.

This section summarises our RIIO-ED2 expenditure plans, and provides an overview of;

Our expenditure required to meet the needs of our customers and stakeholders, and secure the future of our network as we transition to Net Zero. Outlined across the Regulatory cost categories, and referencing our strategy and delivery plans detailed throughout our plan.

How our expenditure will differ to RIIO-ED1, and the key drivers of investment, including facilitating Net Zero, enabling the DSO transition, digitalisation, and compliance with new legislation.

How we have tested our plan for efficiency as it develops by replicating Ofgem's approach to cost assessment, and ensuring that our plan efficiently meets the needs of our customers and stakeholders.

More information can be found in;

Annex 1.1: RIIO-ED1 track record

Annex 5A.1: Non Operational Capex

Annex 5A.2: Business Plan Data Tables

Annex 5A.3: Cost Assessment

Annex 5A.4: Indirect Costs

We are proposing to spend £3.2bn on our networks during RIIO-ED2, £1.58bn in SPD, and £1.65bn in SPM.

Non Operational Capex

£123m

Network Operating Costs including Smart Metering

£509m

Load Related

£430m

£608m

Closely Associated Indirects

Non-Load Related

£1,203m

£3.2bn

Proposed expenditure for RIIO-ED2

£360m

Business Support

The majority of our forecast is in our Direct Investment programme which comprises Load and Non-load expenditure. Our Closely Associated Indirect costs support the delivery of our Load and Non-load programmes, and our customer service and control services. Our Network operating costs enable us to inspect, maintain and operate our network assets, as well as repond to faults and incidents on our network.

We have embedded £60m (0.6% per annum) of efficiency within our plans, predominantly in our Load and Non load activities, and have then included a further £29m (0.3% per annum) of Ongoing efficiency. We have tested our expenditure for efficiency, and through our cost assessment approach, both our SPD and SPM plans represent 2% efficiency when tested against historic benchmarks.

Comparison to RIIO-ED1

During RIIO-ED1, we will invest £4.1bn across our SPD and SPM Licences over the eight year period, investing on average £505m per annum. RIIO-ED2 runs for five years, and we are forecasting a 28% increase in our annual expenditure, spending on average £647m per annum;

- we will invest £430m in our Load related programme during RIIO-ED2, an increase of £45m per annum compared to RIIO-ED1 driven by the need to increase capacity of our network to meet Net Zero ambition.

- The majority of our Non load activities are in line with RIIO-ED1, however we will need to invest more in our environmental activities as we seek to meet legislation and continue to deliver sustainability ambitions, increasing our expenditure by £16m per annum on average.

- And finally, in line with our strategy to transition to Distribution System Operation, we require a significant investment in our IT and Telecoms networks, most notable in control and monitoring, where we will invest £273m, an increase of £45m per annum on average.

RIIO-ED2 Forecast Totex 2020/21 prices / £m	TOTAL SPEN	SPD	SPM
Load related expenditure	**430.3**	251.3	179.0
Non-load related expenditure	**1,203.1**	533.1	670.1
Network Operating Costs	**489.1**	220.4	268.7
Closely Associated Indirect Costs	**608.4**	309.3	299.1
Business Support Costs	**360.3**	188.2	172.1
Non Op Capex	**122.7**	65.0	57.8
Smart Meters	**20.1**	12.0	8.1
Totex within price control	**3,234.0**	**1,579.2**	**1,654.9**

Note: All costs outlined in this section are Net totex after non price control allocation, and reconcile to S1 Total Costs within price control excluding ongoing efficiency and NIA.

Totex – Net within Price Control

(£m, 20/21 prices)

	Business plan data table code	SPEN (SPD and SPM Total)			SPD and SPM breakdown	
		RIIO-ED1 Annual Ave.	RIIO-ED2 Annual Ave.	RIIO-ED2 5 year total	ED2 Total SPD Expenditure	ED2 Total SPM Expenditure
Connections	C2	3	12	61	36	25
Primary Reinforcement	CV1	22	18	90	44	46
Secondary Reinforcement	CV2	6	45	227	137	90
Fault Level Reinforcement	CV3	8	6	30	13	16
NTCC (New Transmission Capacity Charges)	CV4	2	4	22	21	2
TOTAL Load-related expenditure	-	41	86	430	251	179
Diversions	CV5	6	11	57	19	38
Asset Replacement	CV7	87	100	501	225	276
Asset Refurbishment	CV8 & 9	13	13	64	23	42
Civil Works Condition Driven	CV10	10	7	37	17	20
Operational IT&T	CV11	10	55	273	121	152
Black Start	CV12	1	1	6	3	4
BT21CN	CV13	3	0	0	0	0
Legal and Safety	CV14	6	8	40	18	22
QoS and North of Scotland Resilience	CV15	4	5	26	12	14
Flood Mitigation	CV16	0	2	10	5	4
Rising and Lateral Mains	CV17	13	12	61	34	27
Overhead Line Clearances	CV18	16	4	22	9	13
Worst Served Customers	CV19	1	1	3	1	2
Visual Amenity	CV20	1	1	5	2	3
Losses	CV21	1	2	11	8	3
Environmental Reporting	CV22	2	17	86	36	50
TOTAL Non load-related expenditure	-	174	241	1,203	533	670
Faults, Severe Weather & ONIs	CV26, 27, 28	55	54	271	134	137
Tree Cutting	CV29	17	16	82	24	58
Inspections, Repairs & Maintenance	CV30, 31	19	23	114	49	65
NOCs other (incl. Substation Electricity)	CV32, 33	4	4	22	13	9
TOTAL Network Operating Costs	-	95	98	489	220	269
Closely Associated Indirects Costs	various	110	122	608	309	299
Business Support Costs	various	67	72	360	188	172
Non Op Capex	various	13	25	123	65	58
Smart Meter Intervention DNO	various	4	4	20	12	8
TOTEX WITHIN PRICE CONTROL		505	647	3,234	1,579	1,655

Note: All costs outlined in this section are Net totex after non price control allocation, and reconcile to S1 Total Costs within price control excluding other within price control excluding NIA.

Load Related Expenditure

Our load related expenditure ensures that our network has the capacity to meet the long-term requirements of our customers. This expenditure covers interventions on the network to provide additional capacity to meet growing demand, or to facilitate the connection of new customers in an area of limited capacity.

Our load related expenditure detailed here is a summary of the costs associated with the activity to Develop the Network of the Future, which you can read about in detail in Chapter 4A.1.

> ## Load related expenditure
>
> Load related expenditure falls into five categories, across five Business Plan data tables
>
> - C2 – connections within the price control
> - CV1 – primary reinforcement
> - CV2 – secondary reinforcement
> - CV3 – fault level reinforcement
> - CV4 – new transmission capacity charge
>
> Load related expenditure is 13% of our overall Totex forecast, which is an increase from 8% during RIIO-ED1.
>
> An overview of how we have tested the efficiency of our load related programme is included in our Cost Assessment Annex and associated Engineering Justification Papers.

Our Load related programme will invest **£430m** during RIIO-ED2 over the **5 year period**. This equates to **£86m** per annum. This will upgrade our network to accommodate the scale of low carbon technologies required to meet the Net Zero targets.

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	251	50	19
SPM	179	36	22
SP Energy Networks	**430**	**86**	**41**

*Business plan data tables C2 and CV1, 2, 3 and 4.

This area of expenditure will change the way we invest in our network, increasing focus on flexible solutions and moving away from conventional reinforcements. To determine the most efficient, co-ordinated, and economic interventions, we will continue to challenge our plans and make sure that flexible and innovative solutions are considered for all network interventions.

Connections within the price control
Connections activity is predominantly customer funded, however there are occasions when a new connection needs us to reinforce our network. In these cases, the customer will fund the connection and a proportion of network reinforcement will be funded through the price control. We have based our customer funded connection activity on our Distribution Future Energy Scenarios (DFES). £61m of our forecast expenditure relates to connections inside the price control. Given the significant increase in the forecast connections activity overall, there will be an increase in the need to reinforce the associated network.

Primary and secondary reinforcement
£90m of our load related expenditure relates to primary reinforcement, and a further £227m relates to secondary reinforcement, driven by our DFES which forecasts significant customer demand and generation growth as the UK transitions to Net Zero. While we will seek to create the additional network capacity needed from flexibility, there will also be a requirement for conventional and innovative interventions in many areas due to a lack of mature flexible options. Our primary and secondary reinforcement expenditure is forecast to increase significantly as a result.

Fault level reinforcement
£30m of our load related expenditure relates to fault level reinforcement. The primary objective of fault level reinforcement is to alleviate the potential for fault level issues on the network, predominantly associated with switchgear. Increasing volumes of renewable generation will lead to an increase in fault level. Chapter **4A.1 – Develop the Network of the Future** details how we will:

- deliver a balance of industry-leading innovation and conventional options to manage fault level
- focus on roll-out of fault level monitoring in constrained areas
- use active network management to facilitate new generation
- upgrade equipment to manage fault level at various sites across our network.

Transmission capacity charges
Our distribution networks are connected to the transmission network through transmission connection points. Sometimes when we reinforce our distribution network, we require reinforcement of the transmission network too. This expenditure is essentially capacity charges paid to the transmission licence for access to the transmission network. During RIIO-ED2, we forecast an increase to £4m a year on average, as the increased level of capacity required on the distribution system necessitates increases in the transmission system.

Non load related expenditure

Non load related expenditure is necessary to maintain the health, reliability and safety of our network. Expenditure is incurred across a broad spectrum of investment programmes, to ensure the underlying resilience and integrity of network assets and infrastructure, or driven by legislative requirements or industry guidance.

Non load related also includes expenditure to enable the transition to Distribution System Operation and to manage the environmental impact of our network, two areas where we forecast an increase between RIIO-ED1 and RIIO-ED2. Full details of the the activities we will deliver are outlined in detail in Chapter 4A.1.

Non Load related expenditure falls into several categories which include asset replacement and refurbishment, civil works, operational IT and telecoms. There are also several legal, safety and environmental categories.

Costs and Volumes associated with our Non-load activities are included in Business Plan Data Tables CV5 to CV22.

Non-load related expenditure is 37% of our overall expenditure included in our RIIO-ED2 business plan, an increase of 2% from RIIO-ED1.

As the majority of our non-load related activities are predicated on long term asset management, the majority of the expenditure is in line with RIIO-ED1, with the main exceptions being to facilitate the transition to DSO, or in areas where we are required to react to emerging legislation, industry standards or guidance such as environmental requirements.

An overview of how we have tested the efficiency of our Non-load related programme is included in our Cost Assessment Annex and associated Engineering Justification papers.

As our customers become increasingly dependent on electricity as they decarbonise, we must invest in the health, reliability, and safety of our network by continuing to lead the way in asset management.

Through our Non-load related expenditure, we will invest £1,203m in:

1. The long term asset management of our network, replacing assets where their condition data requires intervention or they have come to the end of their operational life.

2. Ensuring the safety of our network, and the protection of our workforce and our customers.

3. Reducing the environmental impact of our network, by prioritising and progressing more environmentally friendly solutions, and protecting the environment from the impacts of our network.

4. The resilience of our network by improving our ability to monitor and remotely control all areas of our network, as well as adapting to operate with greater flexibility and efficiency.

5. Improving service to our customers.

In our Non Load Programme, we will invest:

£565m in the modernisation of assets on our network

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	248	50	43
SPM	317	63	57
SP Energy Networks	**565**	**113**	**100**

*Business plan data tables CV7, 8 and 9.

Through our asset replacement and refurbishment we monitor the condition of our network and prioritise intervention for assets which are at or near the end of their operational life. This accounts for 47% of our total non-load expenditure.

£37m in the condition of our civil assets

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	17	3	4
SPM	20	4	5
SP Energy Networks	**37**	**7**	**10**

*Business plan data table CV10.

We will invest £37m to keep our civil assets and buildings in good condition, which protects the public and our staff and contributes to maintaining the health of our assets. In RIIO-ED2 we will prioritise our poorest-condition civil assets, generating efficiencies in our maintenance costs by reducing the number of legacy assets and buildings, and coordinating our interventions with our refurbishment and replacement programmes.

£123m in managing the safety of our network

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	60	12	18
SPM	63	13	17
SP Energy Networks	**123**	**25**	**35**

*Business plan data tables CV14, 17 and 18.

In RIIO-ED2, 10% of our Non load expenditure will address network safety – we will invest £123m to deliver a range of activities to improve the safety of the network and manage security risks.

During RIIO-ED1, we invested on average £16m per annum to ensure our overhead lines assets comply with proximity to ground clearance requirements. This safeguards our staff and the public by reducing the risk of inadvertent contact. We have resolved over 106,000 of these issues to date – continuing to deliver on our commitment to the Health and Safety Executive. This programme will conclude in 2021, and our commitment in RIIO-ED2 is to continue annual inspections to maintain compliance as our assets deteriorate. For this reason, we are forecasting a reduction to £22m over the RIIO-ED2 period.

Rising and lateral mains (RLMs) are the LV cables that supply customers in multi-occupancy buildings, either in multi-storey (rising) or terraced (lateral) properties. During RIIO-ED1, and with the support of the Health and Safety Executive, we have taken an active role in recognising and addressing a key public safety risk by modernising poor-condition RLMs. For RIIO-ED2 we will invest £61m proactively inspecting and modernising properties with poor condition RLMs that we have identified.

We also undertake various inspection and prevention activities. This includes mitigation of fire risk, installation of fire protection, delivery of our asbestos management strategy and managing safety through our recreational sites and earthing programmes.

£102m in reducing our environmental impact

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	47	9	2
SPM	55	11	2
SP Energy Networks	**102**	**20**	**4**

*Business plan data tables CV20, 21 and 22.

We have taken significant steps during RIIO-ED1 to reduce the environmental impact of our assets and improve the environmental resilience of our network. We intend to build on this during RIIO-ED2, and forecast increased expenditure in environmental protection.

We will invest:

- **£15m in our environmental management –** continuing our contaminated land and oil pollution programme and bunding at 33kV and 132kV transformer assets.

- **£71m in persistent organic pollutant asset changes –** European legislation requires us to remove all oil-filled assets with more than 50ppm Polychlorinated Biphenyl (PCB) by 2025.

- **£5m in visual amenity –** we will continue our programme to underground overhead lines in designated Areas of Outstanding Natural Beauty and National Scenic Areas.

- **£11m in reducing technical and non-technical network losses** – technical losses will increase due to electrification of heat and transport and greater levels of decentralised renewable generation. We will invest to manage losses by replacing high-loss primary and secondary transformers with low-loss models.

£280m operational telecoms and network restoration

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	124	25	4
SPM	156	31	6
SP Energy Networks	**280**	**56**	**10**

*Business plan data tables CV11 and CV12.

We forecast operational IT and telecoms expenditure to increase significantly during RIIO-ED2, as we seek to facilitate our transition to DSO by ensuring that the monitoring and controls on our network are suitable for the levels of flexibility the future network will demand. We forecast that our expenditure will increase significantly compared with RIIO-ED1, and that we will spend £273M investing in upgrades and maintenance of our operational IT and telecoms network.

Expenditure in this area consists of four components; telecommunications, SCADA systems, smart systems and central data management, and network automation and monitoring. In simple terms, these are the systems which communicate all data and control signals systems which allow our network monitoring and control systems to operate. The magnitude of the changes means a significant increase in the short-term level of investment is required.

In addition, we will invest £6m in Electricity System Restoration activities. As a DNO, we have a responsibility to build a network which is resilient to a total or widespread loss of power on the GB electricity network. During RIIO-ED2, we will achieve full resilience for all core and critical substation locations part of our wider strategy to achieve full network resilience by the end of RIIO-ED3.

£30m in improving the service we supply to customers

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	14	3	2
SPM	16	3	2
SP Energy Networks	**30**	**6**	**4**

*Business plan data table CV15 and CV19.

During RIIO-ED2, we will undertake proactive investments to improve the quality of service which our customers experience across our network. This will include upgrades to our network which will reduce the duration and frequency of interruptions experienced by our customers, and reduce the overall fault rate of our network.

We will also invest specifically in improvements to the network which supplies our worst served customers. These customers experience an increased rate of interruptions on average. We will spend £3.3m to improve the quality of supply for these customers.

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Network Operating Costs

As the world decarbonises, our customers will become increasingly dependent on electricity. It is therefore crucial that we react quickly to any faults on our network to restore power, and ensure that we inspect and maintain our asset base to ensure exceptional ongoing reliability and availability.

Network Operating Costs are organised into the following categories: Faults, Inspections, Repair and Maintenance, Trees and Other minor expenditure such as Dismantlement and Substation Electricity.

Network Operating Costs are 15% of the overall expenditure included in our RIIO-ED2 business plan, and are forecast to increase by 3% from RIIO-ED1 on an average annual basis.

Where we have identified increases in our Network Operating Costs, we have sought to offset these with innovative solutions, or efficiencies, in line with our RIIO-ED1 approach.

An overview of how we have tested the efficiency of our Network Operating Costs programme is included in our Cost Assessment Annex and associated Engineering Justification Papers.

Our Network Operating Costs categories are further explained below:

1. Faults – Management of network faults, including providing generators and support to customers, including the most vulnerable.

2. Inspections, Repair & Maintenance – Undertaking our extensive inspections, maintenance and repair programmes, intervening where required before a fault occurs.

3. Trees – Completing our tree cutting programme, which protects our OHL network from trees falling onto lines.

4. Other minor areas of expenditure – including Substation Electricity and the Dismantlement of network assets which are no longer in service.

We will invest

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	220	44	43
SPM	269	54	52
SP Energy Networks	489	98	95

*Business plan data tables CV26, 27, 28, 29, 30, 31, 32, and 33.

£271m in locating and repairing network faults

Faults expenditure makes up 55% of our total Network Operating Costs, and 8% of the overall Totex included in our RIIO-ED2 Business Plan. Expenditure on fault repair is associated with our 24-hour service of locating and repairing network faults quickly and safely. Although we have experienced upwards pressure on faults costs from fault rates, salary and contract costs, we have made improvements to minimise impact including deploying new technologies to improve our ability to locate and repair faults, and optimising our workforce planning and scheduling to efficiently deliver network repairs.

£114m in our inspections, repair & maintenance

We inspect and maintain all of our assets regularly to identify hazards or defects which could affect the safety, reliability, or environmental impact of our network. In selected cases, we have reduced the frequency and scope of inspections for lower risk, higher reliability by employing enhanced data collection techniques and new technologies.

£82m in our tree cutting programme

In RIIO-ED2, we will invest £82m in our vegetation management programmes. To maintain a safe clearance distance, these programmes seek to proactively cut back vegetation on a three-year cycle , and inspect trees that are in close proximity to our network. We have seen an increased rate of vegetation growth during RIIO-ED1. If trees and other vegetation get too close to our OHL, they can become a source of faults. To minimise the impact of the higher costs associated with increasing activities, we have developed and deployed innovative technology to survey our asset base e.g. LiDAR.

The activities which we will undertake as part of our Network Operating Costs are detailed in **Chapter 4A.2 – Ensure a safe and reliable electricity supply**, and in the associated annexes.

Indirect expenditure

Ofgem describe indirect costs as the activities that don't generally involve physical contact with system assets yet play an integral role in the delivery of our direct activities. To achieve our business plan commitments, our frontline staff and contractors rely on an extensive, efficient network of support staff and specialist service providers.

> **Indirect expenditure falls into two categories:**
>
> - Closely Associated Indirects (CAIs) – which include core indirect activities such as design, project management, planning and operation management, as well as wayleaves, operational training, and vehicles and transport.
>
> - Business Support Costs – which include core indirect activities such as Human Resources, Non operational Training, Finance and Regulation, CEO, IT & Telecoms, and Property Management.
>
> An overview of how we have tested the efficiency of our Indirects is included in our Cost Assessment Annex.

During RIIO-ED1, we undertook a significant restructure to align our delivery within a district model, optimising the direct investment on our network with a local, coordinated approach to customer service and network management. We are not currently proposing to restructure in preparation for delivering our RIIO-ED2 business plan, however, we will need to implement operational changes to deliver our new activities. We must also increase support to our load related programmes that are showing the biggest growth since RIIO-ED1.

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	497	100	89
SPM	471	94	88
SP Energy Networks	**968**	**194**	**177**

*Business plan data tables C9,10, 35, 11, 12, 13 and 14.

We have completed an extensive review of our expenditure to make sure that we provide a support service that is efficient and cost effective. Given that we are forecasting a significant increase in our Load and Non-load activities, we will need to make sure our indirect support staff and specialist services can support the delivery of our business plan commitments, however we will continue to challenge ourselves to look for innovative ways to generate efficiencies.

Closely Associated Indirect costs

What are Closely Associated Indirects?

Closely Associated Indirects are activities that are directly involved in co-ordinating and supporting the operational aspects of the network operator. These can be split broadly into two types – engineering related activities, and general operational support. Engineering activities include project management and delivery, engineering design and planning of the network, and management of the network on a day to day basis. General operational support includes stores, logistics, vehicle management, and operational IT, as well as health, safety and training functions.

Due to their nature and the delivery model outlined in chapter 6 (Delivering Our plan), closely associated indirects are linked to the level of activity being undertaken and so can flex depending upon the volume of work that is being undertaken over a price control period. Despite the increase in our Load and Non-load programmes, we are using increased automation and efficiency to ensure that we can deliver a significant increase in our Direct work activity, whilst ensuring we can manage an efficient Indirect organisation.

In Closely Associated Indirects, we will need to spend;

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	309	62	55
SPM	299	60	55
SP Energy Networks	**608**	**122**	**110**

*Business plan data tables C9, 10, 35 and 11.

We will need to spend £395m on our engineering activities, This includes expenditure on our network design, engineering management and project management functions, all of which are fundamental to the stewardship of our asset management and system performance activities, the planning and execution of our extensive direct work programme, and the assurance that all work activity is delivered on time and with the expected level of efficiencies which have been set out in our plans.

During RIIO-ED2, there will be a need for enhanced design, engineering and project management activities as we navigate the changing landscape of our networks, as we push our installed asset base beyond original design capability and seek to incorporate flexible, Net Zero technologies and operate as a DSO.

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We will need to spend £91m on our customer service and operational activities,
Within SPEN, we operate two network control centres to manage our networks, one at Scottish Power House in Glasgow and one at our Prenton offices. We operate our customer service call centers 24 hours a day, 7 days a week. Our call centre staff are available to our customers 365 days a year and are responsible for handling inbound calls about incidents on our network and dispatching the necessary response staff.

As we move towards the deployment of DSO, and the use of flexibility increases across our network, it will be the role of our control centre staff to manage and deploy these active network management tools, to ensure that the network continues to meet the needs of our consumers, and to maintain the exceptional levels of service seen during RIIO-ED1. You can read more about our Customer Service and Vulnerability strategy in Chapter 4B.

We will need to spend £73m in developing our future workforce
We have made significant progress during RIIO-ED1 when it comes to developing our future workforce. Our operational training expenditure for RIIO-ED2 is set to marginally increase so that we can:

- continue with our workforce resilience programme

- develop the skills needed to deliver on the network of the future

- replace staff expected to retire over the next ten years

- Invest in a programme of diversity and leadership training for our leaders of the future.

We outline in Chapter 4C.2 how we will promote an inclusive, skilled and community based workforce.

We will need to spend £81m on our vehicles and mobile plant
To manage, operate, maintain and build our network, we rely on an extensive fleet of vehicles and mobile plant. This expenditure covers the lease costs of this fleet, and is forecast to be marginally higher than RIIO-ED1 expenditure due to the move to a decarbonised fleet of electric vehicles. In our Non Operational capex expenditure, we outline how we will decarbonise our vehicles, transitioning to electric vehicles during RIIO-ED2, and you can read more about our plans in Annex 5.1: Non Operational Capex, and Annex 5.4: Indirect Costs.

Business support costs

What are Business Support Costs?

Business support costs include activities provided centrally that our front line staff and contractors rely on. Forecasts of business support costs ought to be more predictable than other parts of the plan, as they are usually fixed. These costs may be centralised within SP Energy Networks, within ScottishPower, or within the wider Iberdrola Group. The costs fall into the following categories; Human Resources, Non-Operational Training, Finance and Regulation, CEO, IT & Telecoms, and Property Management.

In Business Support Costs, we are forecasting that we will need to spend;

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	188	38	33
SPM	172	34	33
SP Energy Networks	**360**	**72**	**66**

We are forecasting we will spend £125m on IT and telecoms
Business support costs for IT and telecoms are predominantly associated with operating and maintaining our IT infrastructure. This covers servers, data telephony networks, PCs and laptops, and printers. Due to the increasing reliance on IT and telecoms for activities such as DSO, as well as the increased focus on data, this expenditure is forecast to increase during RIIO-ED2. You can read more about our plans to embed digitalisation and utilise data to deliver benefits to our customers and stakeholders in Chapter 4C.3.

We are forecasting we will spend £56m on Property management
SP Energy Networks operates offices for almost 3,000 employees across our three networks. Property management expenditure is associated with rent, security, general repair and routine maintenance, and cleaning and catering costs of our property portfolio. Our expenditure in Business support – Property is closely linked to our investment plans in our Non Operational Capex – Property. As part of our RIIO-ED2 strategy we are focusing on significantly reducing the energy consumption across our Property Portfolio, In order to improve the thermal capacity of our buildings and to reduce the overall carbon footprint of our estate.

Non Operational Capex

This section provides an overview of our expenditure related to investments in non-network assets, including IT and telecoms, vehicles, property and small tools and equipment. The transition to Net Zero will require short-term increases in our expenditure as we replace our current fleet with electric vehicles, improve our digitalisation platforms, and reduce the carbon footprint of our property portfolio. Although our non-operational expenditure will increase, our investments will be more efficient in the long run.

Non-operational expenditure makes up 4% of the overall Totex included in our RIIO-ED2 Business Plan. It is forecast to increase compared to RIIO-ED1 levels. Predominantly driven by our Digitalisation Strategy, which increases our IT and telecoms expenditure in the short term.

During RIIO-ED2, non-operational capex will include investment in:

- upgrade or replacement of our IT systems, system enhancements and improvements in our automation capability, and replacement of assets reaching the end of life.

- upgrade or replacement of our fleet of vehicles, including the integration of electric vehicles, as well as the procurement and maintenance of plant – such as generators.

- our non-operational property, including both our district depots and our corporate offices, consolidating our portfolio and reducing our carbon footprint.

- small tools and equipment, plant items required to complete our direct work activities.

An overview of how we have tested the efficiency of our Non Operational Capex programme is included in our Cost Assessment Annex.

Non Operational Capex, we are forecasting that we will need to spend;

£m, 20/21 prices	RIIO-ED2 total	RIIO-ED2 annual average	RIIO-ED1 annual average
SPD	65	13	6
SPM	58	12	7
SP Energy Networks	123	25	13

We wil invest £69m on IT and telecoms

Our RIIO-ED2 IT and telecoms investment is a continuation of our RIIO-ED1 strategy to place the digitalisation of our processes and systems at the core of what we do. We need to enhance our digital platforms to deliver our activities, meet our commitments to customers and stakeholders, and realise our DSO and flexibility ambitions. RIIO-ED2 also places greater focus on improving the way we capture, analyse and share data.

We wil invest £5m on Vehicles

In line with the Scottish Power group strategy to decarbonise our fleet of operational vehicles, and to electrify our fleet under 3.5 tonnes in the next 10 years, we will electrify all cars and small/medium-sized vans by 2024 and target all 4x4s and larger vans for electrification by 2026. This means that all vehicles within our fleet must be replaced during RIIO-ED2 to keep the size and type of vehicles consistent. While electrification of the fleet will reduce fuel consumption, there will be an increase in the cost of charging. This is why our maintenance and fuel expenditure are forecast to remain static over the course of RIIO-ED2. Our electrification strategy will also merit the requirement to install electric charging infrastructure across our depots, included under our property investment. In addition, we need to maintain a small number of specialist vehicles we own – including generators, trailers, test vans, and trucks.

We will invest £41m on Property

Our property investment consists of investment and maintenance of our non-operational sites, including district depots and corporate offices and payment of our business rates.Investment and maintenance expenditure is incurred on a site-by-site basis, and determined using maintenance records, statutory and industry guidelines, and requirements to replace plant and machinery at the sites. This expenditure is closely linked to our Non Operational Capex investment, where we are focusing on significantly reducing the energy consumption across our property portfolio to improve the thermal capacity of our buildings and reduce the overall carbon footprint of our estate, in line with our strategy to achieve Net Zero.

A full breakdown of the activities associated with our Non Operational capex is outlined in our annex 5A.1 Non Operational Capex and Annex 4C.1: Digitalisation Strategy.

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Network Innovation Allowance (NIA)

Without NIA and other dedicated innovation stimuli, we would not have innovations such as active network management[1] and real time fault level monitoring[2] in place – both of which have delivered significant savings to customers. NIA will play a key role in the energy system transition and consumer vulnerability innovation.

We believe continued investment of the NIA is needed for innovation that does not fall within our Totex incentives. This could include everything from early research and development that will not provide any payback within the regulatory period, to solutions that benefit the wider industry more than us.

The wider community benefits directly from at least 75% of our NIA funding. So far in RIIO-ED1, over £12m has been shared with SMEs, local communities and academia partners as a result of our open, transparent and inclusive approach. We benefit from their know-how and resources, as for every £1 we invested, we have leveraged almost £2 additional funding – ultimately creating more value for our customers.

Listening to our stakeholders
We engaged with our stakeholders on our RIIO-ED2 plan. They told us:

- Not to adopt a siloed approach to the Energy System Transition (EST) and Consumer Vulnerability (CV) themes. Instead, both areas of focus should be considered when considering the impact of most innovation activities.

- To develop a clear thread between innovation projects to provide long-term benefits.

- To be more ambitious with our innovation programme in RIIO-ED2 than we were in RIIO-ED1.

We agree with our stakeholders' ambition – innovation is more important than ever if we are going to efficiently facilitate Net Zero and maintain a safe, reliable network for our customers. That is why we commit to keeping innovation at the core of everything we do in RIIO-ED2.

Developing our strategy
Based on our expertise, coordination with other distribution network operators (DNOs) and customer requirements, we identified focus areas within Ofgem's high-level innovation themes of EST and CV. We developed a strategy around these focus areas and aligned it with our wider Future System Strategy.

The EST includes adapting to the decentralisation of generation, and the uptake of Low Carbon Technologies. Network modernisation, digitalisation, DSO, whole energy systems and sustainability are the focus areas where we are best positioned for delivering innovation that will enable the EST.

A greener energy system, for less
To highlight the extent of innovation we need to undertake in RIIO-ED2 and our whole system approach, we have spotlighted some key innovation areas: consumer vulnerability, hydrogen, electrification of transport, electrification of heat, and power electronics & Low Voltage Direct Current (LVDC). These are covered in detail, with examples of projects that we plan to undertake and our full delivery plan, within Annex 3.1: Innovation Strategy.

When delivering innovation in RIIO-ED2, we will undertake a CV impact statement for all Totex funded DRIVE innovation campaigns and innovation stimulus funded projects. This will help us deliver a just transition to Net Zero.

To enable this ambition, we propose the following with respect to NIA in RIIO-ED2:

£35m total allowance
This should be awarded as an ex-ante allowance at the start of RIIO-ED2. This will provide us with the certainty and flexibility to invest in the right innovations at the right time, to maximise impact. While this represents an almost two-fold increase on RIIO-ED1 investment levels, we believe it is proportional to the activity we will be delivering in RIIO-ED2, the challenges posed by Net Zero, and our clearer, open and more flexible approach to innovation.

There is potential for innovation to grow beyond our current forecast. We support the availability of a reopener (as proposed by Ofgem) to increase NIA funding allowance in the event that upfront NIA allowances are fully utilised.

To lead from experience
The NIA commitment is supported by our track record in efficiency and new learnings. For example, we will lead and share the learnings on power electronic technology at the national level, representing a £400m a year sector with national importance.

No siloes
We will avoid the adoption of a siloed approach to the EST and CV themes by undertaking a CV impact assessment for all EST projects. We also plan to dedicate £4.3m of NIA to specific CV issues, in addition to the remaining £30.7m for EST. A detailed breakdown of this funding split is presented in our Annex 3.1: Innovation Strategy.

Careful Totex spend management
As NIA will primarily be targeted at projects with a low to middle Technology Readiness Level, we propose to maintain the level of our compulsory contribution from Totex spend at 10%.

Future-proof spending
We anticipate a £4 return for every £1 NIA invested as we look to RIIO-ED3 and beyond. (To find out more on the above please refer to Annex 3.1).

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[1] Our Accelerating Renewable Connections (ARC) project; https://www.smarternetworks.org/project/spt2004
[2] Our Real Time Fault Level Monitor (RTFLM) project; https://www.smarternetworks.org/project/nia_spen0015

SPM Company Specific Factors

SPM has a unique 'meshed' design that is unlike other distribution networks in Great Britain, and it comes with both additional costs and benefits. Transitioning to a typical radial design is not feasible and would result in significantly higher costs for customers in both the short and long term. Our strategy ensures we continue to deliver a safe, reliable and sustainable network in the context of this unique design under which we aim to maintain the benefits of our network in the most efficient manner.

Understanding the network's design

The majority of the SPM network is an interconnected or 'meshed' design[4]. This means power can flow through multiple routes to the point of use. By comparison, most distribution networks in Great Britain have a traditional radial design, where power typically has only one possible path.

This interconnected design was inherited by us when the electricity supply industry was privatised. Its primary advantage is that it gives our customers a highly reliable electricity supply – our urban customers have on average the most reliable supply in GB. An outage due to a HV network fault is experienced only once every 45 years, and customers do not lose supplies in over 92% of 33kV network faults.
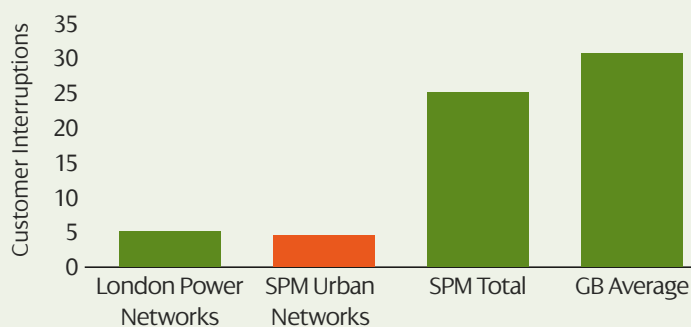

Figure 1: Average annual customer interruptions per 100 customers (2016-2020)
(Source: NAFIRS QoS HV Disaggregation Reporting Pack)

Other benefits are that this design is inherently adaptable and scalable, it can accommodate low carbon technology growth well. These advantages are becoming increasingly valuable to our customers as they decarbonise to Net Zero and become more dependent on a reliable supply.

However, once interconnected capacity is saturated, reinforcement of the network is more expensive than for radial networks. This is because interconnected networks have more assets per customer to replace. Some of these assets are exclusive to SPM's unique network, and some are more expensive than those on a comparable radial network. As a result, it costs more to operate, maintain, and modernise compared to all other DNOs. These additional costs form the basis of the SPM Company Specific Factor (CSF) adjustment.

Company Specific Factor Costs

88% of domestic and commercial customers say that security of supply is very important and indicate a low appetite to accept any reduction in performance. Given this, our strategy for RIIO-ED2 is to maintain the benefits that the legacy interconnected network provides, whilst minimising the ongoing costs to customers of its upkeep and ongoing management.

The incremental costs to do this over RIIO-ED2 are £116.98m. This represents 7% of SPM's RIIO-ED2 Totex. We have calculated the CSF value using a methodology based on established principles accepted in RIIO-ED1. These have been refined in line with the recommendations made in Ofgem's final determination, and refreshed with up-to-date information and assumptions.

An efficient approach

The alternative to maintaining the meshed network would be to completely 'rewire' our network to a radial design. This would more than double the distribution component of customers' bills over the next 40 years and reduce the reliability of their supply. Providing a lower quality service at a higher cost is not in our customers' best interests.

Our approach preserves the unique benefits to customers and makes efficient and innovative interventions to minimise incremental costs through RIIO-ED2 and future price review periods. See our SPM Company Specific Factors Strategy (Annex 4A.25) for more information.

[4]The interconnection extends across our entire 33kV network and over half our HV and LV networks.

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Cost Assessment

We are acutely aware of the financial pressures on our customers, particularly in the current economic climate. Our plans have been developed ensuring that we balance the needs of our stakeholders and customers whilst ensuring efficiency of our proposals. We have sought to assess our plan as it developed to ensure it is fair, and represents value for money, and delivers on the needs of our customers and stakeholders.

We have taken a structured and iterative approach to the development and benchmarking of our expenditure plans. Our draft Business Plan expenditure has been developed through four iterations of review, assessment, and feedback. The results from the benchmarking analysis have been used to continuously challenge the level efficiency embedded in our plans and to ensure our submission represents optimal value for our customers and stakeholder.

Completion date	Milestone
January 2020	Commence discussions
September 2020	First Iteration of Totex, Benchmarking Assessment, and internal feedback
November 2020	Second Iteration of Totex, Benchmarking Assessment, and internal feedback
January 2021	Third Iteration of Totex, Benchmarking Assessment, and internal feedback
April 2021	Fourth Iteration of Totex, Benchmarking Assessment, and internal feedback
June 2021	Final Review and Sign Off

We have completed a rigorous bottom up review of each component of expenditure within our plan. This is to ensure chosen solutions are thoroughly challenged, clear, and transparent, to enable us to understand the complete spectrum of efficiency from our benchmarking analysis.

The RIIO-ED2 Cost Assessment methodology is still not clear. This means that we are not fully aware of how Ofgem will assess the efficiency of our plans once they have been submitted. Ofgem have indicated that they will build on the foundation set in RIIO-ED1, acknowledging that there are elements of this framework which require development. Ofgem have confirmed the following "toolkit" of methodologies will be used:

a. Quantitative econometric benchmarking using regression techniques

b. Quantitative activity level modelling including ratio analysis and Unit Cost benchmarking

c. Qualitative project level expert review

As part of developing our RIIO-ED2 business plan, we *have benchmarked our expenditure*, prior to submission in the following way;

- we have replicated the suite of benchmarking models used in RIIO-ED1. This has required the build of 42 different models, all of which are linked to the Business Plan Data Tables.

- we have tested different model specifications and techniques to ensure efficiency from a variety of methods.

- we have used historical benchmarks to test our plan against Industry leading, upper quartile, and average comparators.

- we have completed over 100 Cost Benefit analysis papers (CBA), and over 120 Engineering Justification Papers (EJP) to select and justify the optimum and most efficient solution.

- we have completed independent external assurance of our benchmarking models and results.

Ofgems High Low confidence framework

In addition to undertaking Cost Assessments, Ofgem's Cost Confidence Assessment looks at the confidence in the needs case, confidence in costs, and the efficiency of the solution. We have developed a framework to classify costs as high or low confidence, and based on this assessment, have put actions in place to improve. This has resulted in either us continuing with confidence, that the costs and volumes in our plan can be justified robustly, or alternatively we have proposed that a Price Control Deliverable (PCD), or Uncertainty Mechanism is the best way forward to address the uncertainty.

We have used the framework above, to understand our level of confidence in the costs and associated evidence base. Each element of our plan has been assigned an indicator as follows;

Indicator	Description
Green	High confidence – all evidence exists and is robust.
Amber	Evidence does not yet exist, but confident that actions can be put in place to improve confidence.
Red	Low confidence cost area. Propose alternative funding mechanism such as PCD, or Uncertainty mechanism.

By applying our cost assessment methodology in the process of developing our Totex, we have developed a plan which is 2% efficient at both a SPEN level, and an individual SPD and SPM level when tested against historic benchmarks. We have externally validated these findings with NERA and intend to build on our analysis as we progress between draft and final submission.

Our Business Plan is accompanied by a supporting Cost Assessment Annex. This annex provides a step by step process of how we have tested and iterated our plans to ensure that they are efficient.

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Managing uncertainty

As we have outlined throughout our plan, the rate of change and the level of ambition required to deliver the transition to Net Zero is greater than ever before. Due to the scale of change, there is uncertainty across several aspects of our plan, and our plan can adapt to this uncertainty within the regulatory framework.

We have considered the trade-off of including expenditure in our baseline plan or through uncertainty mechanisms, in order to ensure customers are not committed to funding works which may not be required.

More detail on the categories of uncertainty listed and the proposed regulatory mechanisms can be found in Annex 5B.1: Uncertainty Mechanisms.

In this section you will read about: the categories of uncertainty we face and our proposed use of the uncertainty mechanisms which Ofgem plans to make available to us.

Energy system uncertainty for Net Zero;
As a result of the transition to Net Zero, there are a range of uncertainties which could emerge. The mechanisms that will be developed will provide us with the flexibility to adapt whilst protecting consumers.

Resilience requirement uncertainty;
We must ensure our networks remain secure and resilient, and comply with resilience requirements. These requirements remain under governmental review, and new standards could lead to additional requirements and additional costs.

Policy and legislative uncertainty;
External changes from government, regulatory bodies, or other authorities could require us to change our plans at a later date, we are unable to forecast the impact on our plan prior to creating our business plan.

Uncertainty from third party activities;
Emergent activities of external parties can influence and determine additional work which we have to complete on our networks. We require a mechanism which allows us to react and meet the emerging needs of customers and stakeholders.

Financial uncertainty and pass through;
There are established mechanisms which allow us to manage uncertainties such as changes to rates, taxes, and fees which we are obliged to pay. Changes to these elements of our plan are outwith our control and non discretionary.

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Uncertainty Mechanisms

We're confident in our ability to forecast areas which are within our control, such as when to replace assets as they approach end of life, and the need for reinforcement where we have clear justification. The planning and engagement activities we have undertaken to develop our plan give us confidence that the levels of baseline expenditure we are requesting are well justified.

However, some aspects of our activities are less predictable, and our engagement has helped us understand the different types of uncertainties we face. Areas of uncertainty are wide and varied, including the introduction of new Government policy requirements, or situations where the volume of our work is driven by third parties. We use uncertainty mechanisms to manage these aspects and Ofgem has recognised the increased uncertainty DNOs will be exposed to in RIIO-ED2 by introducing more uncertainty mechanisms.

These mechanisms give us the opportunity to react to uncertainties during the price control period and, give Ofgem the ability to increase or decrease our allowances in response to changes during the price control period. Uncertainty mechanisms protect customers from paying too much if an activity is no longer needed. They also help us make sure we can request additional funding for critical activity that arises during the period.

A focus on uncertainty and Net Zero

We must make sure our networks have sufficient capacity during RIIO-ED2 to allow our customers to connect their low carbon technologies safely, and to let us support the Net Zero ambitions of our wider stakeholders. We know that a significant shift will be required, but the pace of change and number of stakeholders involved means that it is impossible to accurately predict the scale of need for the period 2023-2028.

It would not be in our customers' interests to include requests for funding in our baseline plans where we do not believe we have sufficient evidence to justify. However, we do believe that more evidence of need will materialise during the RIIO-ED2 period.

A key characteristic of this network investment is that it is more efficient to anticipate the need for it and undertake it in advance rather than wait for the need to materialise by which time the required investment is likely to cost more, be less efficient and be more intrusive to our customers. To accommodate this risk we are currently working with Ofgem and other DNOs to develop uncertainty mechanisms to enable us to undertake this anticipatory or strategic investment in a timely and efficient manner whilst minimising the risk that consumers bear the costs of unutilised and potentially stranded network investment. These mechanisms will not be finalised until after our plans are submitted.

There are five types of mechanism

Reopeners: these allow for us to propose an adjustment to allowances to deal with an uncertainty that could not have been anticipated at the start of the price review. They can be used to deal with uncertainties across many areas.

Volume drivers: these are used when the unit cost is stable, but the volume of activity is uncertain. They automatically adjust the revenue we recover to meet the costs that can reasonably be expected when a defined volume of activity is delivered.

Pass-through items: these adjust allowances for costs we have limited control over, where Ofgem considers the full costs recoverable.

Indexation: for certain costs where we have limited control – but have recognised indices available to track them – our allowances are adjusted.

Use it or Lose it (UIOLI): allowances can also be categorised as Uncertainty Mechanisms. We have listed our UIOLIs in the Embracing the regulatory framework section.

Categories of uncertainty

We have grouped the areas of uncertainty we face into six main categories below. The remainder of this section contains further details on the uncertainty mechanisms that sit within each of these categories. For full details see Annex 5B.1: Uncertainty Mechanisms.

1. Energy system uncertainties for Net Zero

2. Resilience requirement uncertainties

3. Policy and legislative uncertainty

4. Uncertain activities driven by other third parties

5. Financial uncertainties

6. Pass-through costs

Most of the mechanisms are common across all DNOs, but where there are uncertainties that are company specific, the regulatory framework allows us to propose our own 'bespoke' mechanisms. We are only proposing one bespoke uncertainty mechanism in our plan and this relates to uncertainty driven by environmental legislation change around Polychlorinated Biphenyl (PCBs).

Energy system uncertainties for Net Zero

Our networks must have sufficient capacity to allow our customers to connect their low carbon technologies safely, and to support the Net Zero ambitions of our stakeholders.

Strategic Investment

Why we need a mechanism
The electrification of transport and heat are key components of the drive to Net Zero. We know that network investment will be required to facilitate both, however there is uncertainty on the scale and pace required. Ofgem is currently developing uncertainty mechanisms to enable DNOs to undertake this anticipatory or strategic investment in a timely and efficient manner as a when a need arises.

When and how the mechanisms will be used
We cannot split out how much of our Totex forecast relates to Net Zero alone as our investment plans look across all forecast growth together before deciding on investment needs. The strategic investment uncertainty mechanisms will enable costs to adjust above or below our baseline expenditure levels set out in our plans, as required during RIIO-ED2. Depending on the pace of change in the drive to Net Zero we forecast we could request an additional £232.6m under these uncertainty mechanisms based on our current view of our higher scenarios. We consider there to be a high likelihood that these uncertainty mechanisms will be used to increase investment in RIIO-ED2.

Net Zero reopener

Why we need a mechanism
There are options around alternative pathways which could be taken in the journey towards Net Zero. Some technologies, like hydrogen, could be used to a greater or lesser degrees than others, determined by technological advances, and decisions yet to be made by policymakers. New policies, like those which may emerge following the recent Climate Change Committee Independent Assessment of UK Climate Risk report to Government, could mean that all DNOs experience significant unforeseen changes to their assumptions within their plans. We would expect this reopener allows cost or output adjustments as a result of these type of unforeseen changes.

When and how the mechanism will be used
The mechanism can be triggered any time following a relevant change of circumstances related to Net Zero that materially impact costs or outputs. Ofgem has not yet made a decision on the precise scope and will consult as part of Draft Determinations.

Legislative, policy and resilience uncertainty

It is important that we can continue to meet the needs of our customers and stakeholders in a changing political and regulatory environment. Changes could happen in any area and are dependent upon evolving policy priorities and anticipated pace of change.

Resilience requirement uncertainty

We must make sure our network remains secure and resilient, so we can continue to deliver an excellent quality of supply to our customers. This means we need to comply with the latest resilience requirements.

Electricity System Restoration reopener

Why we need a mechanism
We must meet requirements to restore electricity supplies in the event of partial or total shutdown of the electricity network. The UK government is currently reviewing mandatory electricity restoration resilience standards with a view to increasing requirements that could lead to additional costs for DNOs. A reopener would allow DNOs to submit applications for additional costs if new standards are implemented after final plan submission.

When and how the mechanism will be used
The details of how the reopener will operate is yet to be confirmed. We currently have £6.5m in our plan for expenditure in this area.

Cyber uncertainty

Why we need a mechanism
Cyber Resilience and security is a key risk to all organisations around the world. For DNOs cyber risks could impact communication systems, customer databases, email servers or applications. Changes in technology and the nature of cyber security threats mean that cyber resilience requirements are always evolving. Applicable cyber resilience requirements are determined by the National Cyber Security Centre (NCSC), and it is difficult to anticipate future changes. In addition cyber criminals are always evolving their abilities.

When and how the mechanism will be used
There are separate reopeners for cyber resilience-related OT and IT expenditure, and there will be a single reopener application window at the mid-point of RIIO-ED2. We currently have £12.6m (cyber OT) and £7.7m (cyber OT) in our plan.

Environmental legislation reopener

Why we need a mechanism
DNOs have no control over the determination of environmental legislation and regulations. The reopener would allow DNOs to recover efficient costs associated with changes in environmental standards that impact what we need to do within our Environmental Action Plans (EAP).

When and how the mechanism will be used
Ofgem has not made a decision and will consult as part of Draft Determinations.

Third-party uncertainty

The activities of third parties can sometimes determine the work we have to complete and the costs we incur. As such, we are unable to forecast the full extent of our costs ahead of our business plan submission.

Streetworks Reopener

Why we need a mechanism

The way in which Highway Authorities use and introduce new permit and lane rental schemes is outside the control of DNOs. These schemes charge DNOs for activities that involve work on public highways. This reopener allows DNOs to request funding for costs related to future schemes which are difficult to anticipate.

When and how the mechanism will be used

Ofgem will consult on the details of this reopener at Draft Determination. We currently have £29.6m in our plan in this area. In RIIO-ED1, we were awarded £8.2m of costs during the reopener window.

Rail electrification Reopener

Why we need a mechanism

Rail electrification projects may require DNOs to carry out network diversions and/or upgrades to accommodate increased demand. These projects are subject to changing external factors which make it difficult to include costs within plans. This reopener enables DNOs to recover costs that materialise during the price control period.

When and how the mechanism will be used

Ofgem will consult on details of this reopener at Draft Determination.

Smart meter interventions volume driver

Why we need a mechanism

Energy suppliers install smart meters as part of the Smart Meter Implementation Programme (SMIP). Some smart meter fittings require DNOs to undertake certain works or interventions. The workload is driven by energy suppliers, hence it is difficult for us to forecast.

When and how the mechanism will be used

The agreed unit costs have yet to be decided by Ofgem. Our plan contains a forecast of £20.1m expenditure in this area and on an annual basis we will report on and be remunerated for the number of jobs undertaken based on agreed unit cost.

Coordinated Adjustment Mechanism (CAM) Reopener

Why we need a mechanism

The Coordinated Adjustment Mechanism (CAM) is designed to support the implementation of whole system solutions between network companies.

When and how the mechanism will be used

There will be annual reopener window at which we can propose outputs and costs to be reassigned, if the other licensee involved agrees. If the application is accepted by Ofgem, each licensee will have its' price control settlement adjusted.

Financial uncertainty

There are various financial mechanisms which can impact our costs during the price control period. These are outlined below;

Indexation

Why we need a mechanism

There are certain macro-economic factors that impose material costs on DNOs, and these can vary in value day to day. It is difficult for us to accurately forecast these factors and associated costs, so they are instead calculated with reference to an established financial index. Factors that will be indexed in RIIO-ED2 are: Inflation, Cost of debt, Cost of equity and Real Price Effects (RPEs).

When and how the mechanism will be used

Indices are applied annually so adjustments can be made throughout the RIIO-ED2 period.

Tax reopener

Why we need a mechanism

Our forecast for tax expenditure in our baseline plan assumes efficient tax costs based on present legislation and accounting standards. This reopener allows for an application to adjust our allowances if legislation or accounting standards change. In addition, the reopener allows Ofgem to revise tax allowances should they materially change from the underlying liabilities.

When and how the mechanism will be used

The reopener can be triggered at any time during RIIO-ED2 where changes in tax legislation or accounting rules cause a material increase or decrease in tax costs and/or our tax allowances materially change from our liabilities.

Pass-through costs

Why we need a mechanism

The regulatory framework allows for certain categories of costs that all DNOs must incur to be recovered in full, if we are able to provide justification to Ofgem. In RIIO-ED2, the following costs will be treated as pass-through, similar to how they were treated in RIIO-ED1: Business rates, Ofgem licence fee, Transmission connection charges, Supplier of last resort (SoLR) cost claims, Pensions adjustment, Ring fence costs, Digital Communications Company (DCC) fixed costs, Smart meter IT costs,

When and how the mechanism will be used

We automatically recover justified pass-through costs throughout RIIO-ED2 period.

Our proposed PCB Uncertainty Mechanism (Volume Driver)

In 2019, new European environmental legislation came into force which requires us to remove all oil filled assets with more than 50ppm PCBs by 2025.

During RIIO-ED1 we have led extensive analysis and investigation work across the industry to understand what this legislation means for our asset base, and to develop an efficient and consistent approach to achieve industry compliance. We have developed an industry-wide statistical model via the ENA that leverages data from all GB DNOs to better understand the risk of PCB contamination and supports a targeted and coordinated approach towards PCBs management.

Our baseline RIIO-ED2 PCB asset replacement expenditure has been determined through comprehensive modelling analysis using all available data. This has identified 4,056 pole mounted transformers (PMTs) to be replaced in SPD and 6,667 in SPM. In addition, we have identified that 2,563 associated poles in SPD and 4,889 in SPM will need to be replaced in order to safely install replacement transformers. This total RIIO-ED2 expenditures of £26.2m for SPD and £44.6m for SPM.

As with all models, there are likely to be variances in actual replacement volumes due to the margin of error from potential but unknowable omissions of asset and test data. We are therefore proposing a volume driver to adjust our RIIO-ED2 allowances for the actual numbers of PMTs and poles we replace to mitigate potential PCB contamination.

We believe our proposed volume driver is the best way to minimise risk to consumers by ensuring they only pay the efficient costs of our compliance with the PCB asset replacement requirements.

Further detail can be found in Annex 5B.1 (Uncertainty Mechanisms).

Ongoing efficiency and Real Price Effects (RPEs)

Over the course of the RIIO-ED2 price control period, the costs of delivering our services are expected to evolve due to external economic forces, namely the changes in the prices of our inputs relative to general price inflation, referred to as Real Price Effects (RPEs), and the improvements in industry-wide productivity, referred to as 'Ongoing Efficiency' (OE).

For RIIO-ED2, Ofgem has proposed to set RPE allowances based on an indexation approach, whereby DNOs' upfront RPE allowances are updated annually based on the outturn movements of the chosen benchmark input price indices.

In their report commissioned by the ENA, NERA have undertaken such an exercise, setting out their recommendations for the selected benchmark input price indices to be used in the context of an RPEs allowance that is to be indexed over the RIIO-ED2 price control. This report is attached to our Business Plan in Annex 5D.4: Real Price Effects.

Our costs of delivery will also be affected by the productivity improvements we can realistically achieve over the price control period. These efficiencies can be broken down into two components:

- **Catch-up efficiency –** the scope of current, company-specific cost efficiency improvements we can achieve in order to "catch-up" with the efficiency frontier, as set by best practice in the industry.

- **Ongoing efficiency –** the productivity improvements that even the most efficient companies in the sector can achieve over time as a result of adopting new technologies or working practices.

We have embedded £60M of efficiency in our RIIO-ED2 business plan (0.6% p.a.), building our plan efficiently from the bottom up. We have undertaken a detailed assessment of historical estimates, macroeconomic factors, DNO unmeasured efficiency gains, and requirements to deliver new outputs. It is our view that an OE challenge of 0.3% p.a. is an appropriate assumption of the ongoing productivity improvements which equates to approximately £29m over the course of the RIIO-ED2 price control period.

Further detail can be found in annex 5D.5: Ongoing Efficiency, Annex 5D.4: Real Price Effects and Annex 5A.2: Business Plan Data Tables.

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Embracing the regulatory framework

As we face the challenges and opportunities of Net Zero, we must build on the foundations of the regulatory framework established under RIIO-ED1, whilst ensuring it has the flexibility to allow us to make the most effective decisions based on the needs of our customers and stakeholders.

We will continue to work within the framework and utilise the mechanisms upon which the framework is based in ways that ensure we deliver for our customers and stakeholders. We will also continue to engage with the regulator, industry and stakeholders through working groups to further develop the regulatory framework to support Net Zero ambitions.

There are many complex and varied regulatory mechanisms, all of which play a vital role in how and what we will be able to deliver during RIIO-ED2. These mechanisms touch most areas of our plan and this section summarises the key elements and how they fit together to reinforce the ambition of our plan.

These mechanisms include a series of Licence Obligations (LOs), which set specific minimum standards of performance. Some of these remain unchanged from RIIO-ED1, with new ones to reflect the evolving needs of our customers. We will continue to meet all LOs, as we have in RIIO-ED1.

Please refer to Ofgem's summary tables for a list of our Outputs, UMs, CVPs and their associated costs, and Annex 6.1: Delivering Our Plan for associated resource requirements.

This section sumarises four key forms of regulatory mechanism and how we are using them in RIIO-ED2.

Output Delivery Incentives (ODIs)
A key regulatory tool designed to encourage DNOs to deliver their outputs and drive performance improvements that provide value for money for current and future consumers. Outperformance can result in financial reward whereas underperformance could result in financial penalty. Some ODIs are purely reputational where there is a lack of robust information.

Price Control Deliverables (PCDs)
Outputs that are directly funded through the price control and where DNOs are incentivised to deliver exactly what is specified as the funding provided is not transferrable to a different output or project activities.

Consumer Value Propositions (CVPs)
Introduced in Stage 2 of the Business Plan Incentive, CVPs are designed to encourage and reward ambitious plans where they will deliver additional benefits to consumers by going above and beyond minimum requirements.

Use it or Lose it (UIOLI) allowances and allowances with claw-back conditions
These place specific conditions around funding of outputs or activities to ensure the funding is only used for an agreed specific purpose. This results in some allowances only being received by us if certain conditions are met, whilst other allowances we receive may have to be returned if we do not meet the agreed conditions.

Output Delivery Incentives

Our proposed RIIO-ED2 incentives package is designed to improve performance in the areas our customers and stakeholders value the most.

Throughout RIIO-ED1, the RIIO framework has encouraged Distribution Network Operators (DNOs) to make a step change in their performance levels. As we move into RIIO-ED2, the pace of change is increasing, and we are making commitments to meet or exceed targets that take us further.

Output Delivery Incentives (ODIs) are a key regulatory tool within the RIIO framework. They are designed to encourage DNOs to deliver their outputs and drive performance improvements that provide value for money for current and future consumers.

Ofgem has designed a suite of incentives that apply to all DNOs, called common ODIs. We can also propose bespoke ODIs in our plan.

This gives us the opportunity to ensure the output and incentive arrangements reflect the individual characteristics of our network to drive improvements that are valued by our customers and stakeholders.

Financial rewards have been set where data exists to demonstrate that the cost of an incentive is not greater than the value of benefits to consumers. Financial penalties can also be set where Ofgem requires a minimum standard of performance, and where failure would lead to consumer detriment. Reputational only incentives are suitable for output areas that are valued by stakeholders, but where there is a lack of data. They are also useful where it is difficult to measure the consumer benefit

A summary of our common ODIs is provided in the table below. Full details can be found in Annex 5C.5: Output Delivery Incentives (ODIs).

Our common ODIs

The following table sets out the common ODIs that are in place for RIIO-ED2 including the continuation of existing incentives from RIIO-ED1 and new incentives that are under development for the RIIO-ED2 period.

	Incentive & Purpose	Metric	Estimated £m max penalty/ reward per annum
Existing Incentives from RIIO-ED1	**Broad Measure Customer Satisfaction (survey):** incentivises service improvements for customers who get in touch to request a connection, experience an interruption to their electricity supply, or have a general request	Customer satisfaction score	**-£8m/+£8m**
	Broad Measure Customer Satisfaction (complaints): incentivises us to ensure we have robust processes to address customer concerns	Complaints score	**-£4m**
	Time to Connect: incentivises us to invest in measures to connect customers quicker	Time to Quote and Time to Connect	**-£3.2m/+£3.2m**
	Interruptions Incentive Scheme: incentivises us to invest in and operate the networks in a way which reduces the frequency and duration of power cuts	Customer Interruptions and Customer Minutes Lost	**-£46m/ +£46m**
	Network Asset Risk Metric: incentivises our asset expenditure to be linked to network risk reduction	Long term risk reduction target	**TBC by Ofgem**
New Incentives for RIIO-ED2	**Major Connections:** incentivises us to improve standards of service for major connection services	Quantitative and qualitative assessment, all details in 4A.28	**TBC by Ofgem**
	Customer Vulnerability: incentivises the support and protection of customers in vulnerable situations	Quantitative and qualitative assessment, all details in Annex 4B.1: Vulnerability Strategy	**+£4m/-£4m**
	Environmental Action Plan and Annual Environmental Report: ensures we have robust plans to minimise the environmental impacts that can result from our network activities	Measured across ten metrics, all detailed in 4C.3: Environmental Action Plan	**Reputational only**
	Environmental Scorecard: incentivises us to meet and exceed the stretching commitments in our Environmental Action Plan	TBC by Ofgem after plans submitted	**TBC by Ofgem**
	Distribution System Operator: incentivises us to meet and exceed the baseline standard for DSO through the delivery of our DSO Strategy	Quantitative and qualitative assessment, all details in Annex 4A.3: DSO Strategy	**TBC by Ofgem**

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Bespoke ODIs

In the RIIO-ED2 framework, Ofgem has introduced the opportunity for DNOs to propose outputs and incentives that are bespoke to them, that are developed in collaboration with our stakeholders and our CEG. This allows companies to submit proposals for incentives that reflect the specific preferences and needs of their customers and stakeholders.

As part of our RIIO-ED2 business plan we are proposing the following three bespoke ODIs in our plan:

1. LV Connections Offer Accelerator

2. Community Energy

3. Advice Services

For all of our proposed bespoke ODIs, we have listened to our customers and stakeholders and believe these are important areas where the communities we serve require an additional push from us to provide the services they desire.

Our current proposals are supported by Stakeholder engagement and we have worked with our CEG to test the value and benefits of these incentives to ensure enduring value to our customers.

Throughout the development of these bespoke ODIs we have gone through a robust assessment exercise where we have tested our proposals against Ofgem's criteria for bespoke outputs and we are confident that our three bespoke ODIs meet the requirements set out in Ofgem's business plan guidance. For all our proposals we have outlined the needs case, defined the incentive mechanism, targets, along with supporting evidence and an assessment of the costs and benefits for each of our proposals.

As we develop our plan between draft and final submission in December, we will engage further to refine our bespoke ODI proposals. For more information on the structure, metrics and supporting evidence for our bespoke ODI proposals please refer to Annex 5C.5: Output Delivery Incentives (ODIs).

Our bespoke ODIs

| Incentive & Purpose	Metric	Estimated £m max reward per annum
LV connections offer accelerator: incentivises improvement in the level of service and the speed in which quotes are issued for low voltage customers that are not in scope for TTC/TTQ incentive. This is explained in more detail in section 4A.	Time to Quote for LVAL and DGLV customers	+£2m (0.25% Base Revenue)
Community Energy: incentivises us to undertake activities that encourage and facilitate community-led renewable energy, energy demand reduction and energy supply projects. This is explained in more detail in section 4B.	A scorecard of qualitative and quantitative metrics and evidence	+3.2m (0.4% Base Revenue)
Advice Services: incentivises us to provide a range of advice services that help our customers to reduce household or business costs, drive efficiency and help them access the benefits of the low carbon transition. This is explained in more detail in section 4B.	Customer satisfaction score and volume/ value of work delivered	+£2m (0.25% Base Revenue)

Consumer Value Propositions

We have developed three Consumer Value Proposition (CVP) proposals to deliver greater value for consumers.

Ofgem has introduced the Business Plan Incentive, a four-stage assessment, to ensure the quality of business plan submissions. CVPs are introduced in Stage 2 of this framework as one way of encouraging and rewarding ambitious plans. These proposals deliver additional benefits to consumers by going above and beyond minimum requirements and functions in one of the five priority areas identified below. These priority areas have been set by Ofgem.

1. Services to vulnerable consumers.

2. Services to major connection customers.

3. The Environmental Action Plan (EAP).

4. Distribution System Operator (DSO) activities.

5. Whole System approaches.

The CVPs we propose are a subset of the most ambitious and impactful commitments offered within the Business Plan and are based on clear stakeholder and customer feedback.

A bespoke, 10 stage, 'CVP Test' drove the selection of our CVP proposals to ensure we only propose those that are clearly supported by stakeholders and best demonstrate our value proposition to customers in ED2. We developed the bespoke test following analysis of both regulatory guidance documents and Ofgem's decisions on CVP proposals in the RIIO-T2 and GD2 processes. Application of this test allows us to focus on the areas we may want to refine between our draft and final business plan submissions.
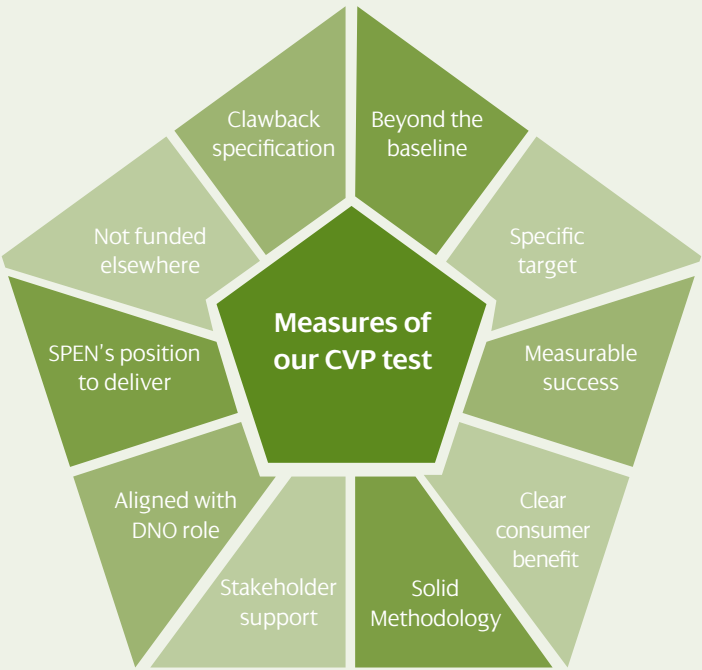
The CVP proposals that emerged from our 'CVP Test' have been quantified using the Social Return on Investment (SROI) method. We have been at the forefront of industry efforts to standardise the use of this method to quantify the total economic value delivered by DNO initiatives.

Further details on our CVP proposals and our approach to developing can be found in Annex 5C.2: Consumer Value Propositions. In addition to the CVPs below, for our final plan, we aim to develop one further CVP in relation to our proposal to adopt a voluntary Science-Based Target for our indirect Scope 3 carbon emissions. See Annex 4C.3: Environmental Action Plan for further details

Our CVPs

The table below summarises our three proposed CVPs. We have outlined our costs and gross benefit of each CVP, alongside our proposed CVP award (on the assumption that we will share 50% of the net benefits with our customers).

CVP Item	CVP Description	Costs / Benefits
CVP1: Direct LCT vulnerable support – Supporting vulnerable customers to ensure we leave no one behind during the Low Carbon Transition Priority area: services to vulnerable consumers	This involves two major initiatives aimed at ensuring that vulnerable customers are not left behind in the energy system transition 1. Funding technology to reduce energy demand for 40,000 of our most disadvantaged customers, with an average bill saving of £100 year and reducing emissions 2. Increasing the uptake of smart meters across harder to reach customer groups	**Costs: £14.0m Gross Benefit: £22.2m Potential CVP award: £4.3m**
CVP2: EV Optioneering – Our strategic role in accelerating the deployment of core EV infrastructure Priority area: whole systems approaches	This involves carrying out EV optioneering works for 35 local authorities. EV optioneering aims to identify the optimal placement of EV charging infrastructure, saving on connections costs, accelerating the EV infrastructure roll out and facilitating the uptake of electric vehicles	**Costs: £4.1m Gross Benefit: £15.2m Potential CVP award: £5.7m**
CVP3 – Network Loss Reduction and Safety Enhancement Priority area: The Environmental Action Plan	This involves the procurement a Mobile Asset Assessment Vehicle (MAAV) to detect stray and contact voltages that result from faults on our network and on connected third party equipment. Earlier detection of these faults will help us to reduce technical and non-technical network losses, improve network performance, and improve customer safety	**Costs: £10.2m Gross Benefit: £12.0m Potential CVP award: £1.2M**

Measures of our CVP test

- Clawback specification
- Beyond the baseline
- Not funded elsewhere
- Specific target
- SPEN's position to deliver
- Measurable success
- Aligned with DNO role
- Clear consumer benefit
- Stakeholder support
- Solid Methodology

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Price Control Deliverables

The use of Price Control Deliverables (PCDs) in the RIIO-ED2 framework is another useful way of ensuring that we deliver value for our customers, stakeholders, and wider industry.

Ofgem define PCDs as outputs that are directly funded through the price control and where the funding provided is not transferrable to a different output or project. The use of a PCD ensures the conditions attached to the funding are clear up-front and that the funding can only be used for the specific elements contained within the scope of the PCD. This ensures we retain our focus on delivering what matters most to our customers.

In addition to a number of common PCDs which apply to all DNOs, we have developed one bespoke PCD for RIIO-ED2. The following tables summarise our PCDs, with further details in Annex 5C.6: Price Control Deliverables (PCDs)

Our common PCDs

Output name	Value
Network Asset Risk Metric – this will enable us to manage the level of asset risk across our network	£343.7m
Cyber Resilience IT – this will enable management of risks associated with the security of our information technology (IT) network	£7.7m
Worst Served Customers – this will enable us to reduce the number of interruptions experienced by those customers who experience an unusually poor service	£3.3m

Our bespoke PCD

Output Name	Value
Land Rights – this will enable the settlement of valid outstanding Injurious Affection (IA) claims from the RIIO-ED1 period in a cost-effective manner	£42.7m

Use it or Lose it (UIOLI) allowances and allowances with clawback conditions

There are some areas where we know that our customers and stakeholders value activities, but we are unable to set out the detail of the specific activities at the start of the price control period or circumstances may change during the period and these activities may no longer need delivered.

By attaching the costs of these to either Use it or lose it (UIOLI) allowances or allowances with clawback conditions, we ensure that our customers will only pay for the activities that are needed.

DNOs can only access a UIOLI allowance if the expenditure meets the conditions set.

Alternatively, 100% of an allowance could be given to us at the start of the price control period, but with clawback conditions attached to ensure that a percentage of this is returned if we do not meet the agreed conditions surrounding the use of the allowance.

There are UIOLI mechanisms that are common to all DNOs and we are also proposing four bespoke allowances with clawback conditions. These are summarised below, with full details in Annex 5C.7: UIOLI / Clawback Allowances.

Our common UIOLI allowances

Output Name	Value
Network Innovation Allowance: This allows us to fund research, development and demonstration projects relating to support for vulnerable customers	£35.0m

Our bespoke allowances with clawback

Output Name	Value
Net Zero Fund: will facilitate innovative low-carbon projects as well as those using proven technology. It will focus on practical initiatives, brought to us by our communities, supporting Net Zero aims, creating jobs and removing financial and knowledge barriers	£30.0m
Direct LCT vulnerable support: These are the costs associate with CVP1 above	£14.0m
EV Optioneering: These are the costs associate with CVP2 above	£4.1m
Network Loss Reduction and Safety Enhancement: These are the costs associated with CVP3 above	£10.2m

Financing our plan efficiently

This section considers the overall financing arrangements within our draft plan, an overview of our revenue and then an insight into how we have approached our financing plan. Much of our evidence is highly technical. The following pages provides an accessible summary of this detail. We have performed a full review of all financial information requested in Ofgem guidance and Challenge Group correspondence. All requested analysis is provided in this section, to provide a plan complying with Ofgem guidance and we provide our alternative views and analysis in Annex 5D.1: Finance.

This section also addresses questions on appropriate cash flow levels, and appropriate shareholder remuneration. We also explain our plan assumptions on capitalisation and regulatory depreciation, and how we adopted Ofgem's financial policies on the treatment of taxation and pension costs.

In this section, we'll outline each of the following areas in more detail to show how we reached our financing conclusions.

- **Cost of Debt**
  In our draft plan we have adopted Ofgem's policy of indexation of a 17 year trailing average period however we recommend an increase in the additional cost of borrowing allowance.

- **Cost of Equity**
  In this draft plan we have adopted Ofgem's guidance from their 11 March 2021 RIIO-ED2 Sector Specific Methodology Decision. We examine Ofgem's methodology, and offer an evidenced alternative proposal based on economic and financial principles.

- **Notional Gearing**
  We introduce cash flow risk. We also test that our proposal delivers acceptable upside and downside potential from the price control package, using Return on Regulatory Equity (RoRE) analysis.

- **Financeability**
  We carry out 'static' (or, in other words, non-probabilistic) testing. This ensures an expectation of an investment grade credit rating – but no higher.

- **Efficiency and Financeability**
  We further test our plan by conducting a comprehensive probabilistic risk analysis, using a framework developed in conjunction with our economic advisers NERA. This is designed to test our plan against external shocks.

- We present additional detailed analysis of our Finance in Annex 5D.1: Finance.

Co-creating our RIIO-ED2 plans with our customers and stakeholders

Purpose of stakeholder engagement for this chapter

Stakeholder engagement for financing our plan must account for the views of consumers, networks and wider stakeholders – to ensure all our funding decisions are efficient and always consider the potential impact on consumer bills. It is the network owner's responsibility to demonstrate that their financing plan is 'efficient', requiring no greater cash flow than is necessary to be 'financeable'. We have regulatory and licence requirements to ensure our network is adequately funded so that it remains safe, secure and reliable. Equally we must ensure longer-term network investment funded through shareholder investment is sustainable. By this we mean making sure investors' rate of return on their investment in our network is set at a level that takes account of the inherent risk associated with investing in the GB electricity sector at present. To achieve this we use our dedicated investor engagement team to understand the rate of return investors require, and better understand the concerns of investors at a global scale including the impacts of issues such as: nationalisation, Scottish independence, structural changes to the electricity industry, Brexit, commodity and security of supply risks and, importantly, changes to funding proposed by the regulator.

How and why we have engaged with our stakeholders

Using workshops and consumer research surveys we engaged with consumers and consumer representatives about our investment plans for RIIO-ED2 in respect to their priorities. This allows those stakeholders who are less familiar with how we are financed to better understand when and why we invest, and to have their say in these decisions.

Engaging with consumers and consumer representatives we worked to explain the key attributes of the distribution network. Over the period to December 2021, when our RIIO-ED2 plan is to be submitted, we will be using various qualitative and quantitative workshops, interviews and online tools to establish the 'willingness-to-pay' of GB bill payers for delivering in these areas. Also, we plan to conduct a consumer and business acceptability survey to outline each aspect of our plan and the associated bill impact.

We also engaged with investors and the regulator via meetings and conferences and have taken into account relevant guidance and publications from financial market experts. There has been substantial investor comment and feedback on relevant recent events relating to the initial energy networks RIIO-2 price controls for electricity transmission, gas transmission and gas distribution. From these events, which have led to all the companies involved (4 GDNs and 4 TOs) referring their allowed return on equity and other areas of their final determinations to the CMA for review, we have been able to infer broad shareholder disagreement with Ofgem's levels of return, proposed under RIIO-2, and the RIIO-2 mechanism known as 'expected versus allowed returns' adjustment.

We were also able to share the methodology and high-level calculations behind the financing of our plan with our Consumer Engagement Group.

What our stakeholders have told us is important to them

Consumers have told us that they find the way network companies are funded complicated and not something they value having detailed information on. What they do care about, however, is the bill impact of our investment decisions and ensuring our investments represent value for money for them. In advance of our plan submission in December 2021 we will test our view that the overall bill impact in RIIO-ED2 is low, in comparison to current levels, given the amount of activities, investment and additional consumer benefit it will enable us to deliver in RIIO-ED2.

A number of global utility investors have expressed concerns that Ofgem's proposed cost of capital does not accurately reflect the true risks which investors continue to take when financing electricity network operators in GB. Ofgem's working assumption of the cost of equity for RIIO-ED2 is 4.65% (CPIH)[1]. Our investors also informed us that they continuously review areas of investment opportunity and challenge, taking into account a number of different considerations. For example, the stability of the geographical area within which they invest remains a key factor, especially when those investments are recovered over a long period, such as 45 years, for our proposed RIIO-ED2 investment.

How stakeholder feedback has shaped our plans

Based on the feedback we have gathered from stakeholders and expert evidence, we offer an evidenced alternative recommendation to Ofgem's draft cost of equity. This reflects a fair return for our investors founded on economic evidence, the external environment and regulatory precedent.

We are going from a 6% (RPI) cost of equity in RIIO-ED1 down to a level equivalent to around 3.65% on an RPI basis. This is a reduction in the return to shareholders of around forty percent. On a like-for-like basis it is a very significant reduction and is a historical low for returns in the electricity distribution sector.

This has damaged investor confidence, at a time when we need an environment which positively attracts investment into the electricity distribution sector.

Why these changes are important

The transition to Net Zero carbon will require significant, sustainable investment in electricity infrastructure over the next five to ten years. The funding of the transition relies on the long-term investment made possible by shareholders. Through our extensive engagement programme we understand Ofgem's current draft cost of equity may disrupt the efficient financing of GB's networks businesses. It puts at risk network companies' ability to raise new finance, which is essential to fund the necessary investment to deliver the outputs that consumers, network users and customers require and to facilitate the transition to a low carbon economy. The consequences of not delivering these investments on time will be significant for consumers. An appreciation of the wider sector is required as, for example, if we cannot deliver the energy from windfarms to consumers, the constraint (compensation) payments to generators will materially increase, which are ultimately funded by the consumer.

There is also a much more significant cost. If this renewable energy is not delivered then the risk of supply incidents increases. Power cuts can have widespread economic costs. As the economy is further electrified that impact will become greater. As an example, most transport in Scotland is diesel and petrol based, but further electrification of rail and the deployment of electric vehicles will change that. This means that the impact of power cuts in the future will be even greater. There are also estimates that the cost of a power cut across Scotland would be around £1 billion per day.

Our revenues

Our average revenues explained

We have two strands of revenue. On the one hand, we have revenue directly associated with past capital investment. This is referred to as regulated asset value (RAV) revenue and includes depreciation and return.

On the other, we have revenue related to the day-to-day running of the network (not RAV-associated). This revenue pays for a wide range of items, including network maintenance, taxes (such as corporation tax), business rates and established deficit pension funding.

SP Distribution

Our average RIIO-ED2 baseline revenues will remain broadly flat with that of RIIO-ED1. However, by the end of RIIO-ED2, our annual revenues will have decreased by £38m[20/21] (9%), primarily caused by a both a historical financeability adjustment and our agreed established pension deficit funding coming to an end. In DPCR5, Scottish DNOs faced a cliff face drop in revenue following the full depreciation of assets held at privatisation. To mitigate volatility, financeability concerns and pressure put upon energy retailers and end consumers, Ofgem agreed to accelerate future revenues over 15 years to 2025/26 which leads to another cliff face to the magnitude of £35m[20/21]. All non-Scottish DNOs faced their cliff face adjustments in RIIO-ED1, however the impact was masked by revenue profiling. Our Pension Deficit Funding agreed with the Governments Actuary Department (GAD) in the 2020 Reasonableness review, will end in 2025/26, causing a further reduction of £35m[20/21] to our allowed revenues. Both aspects are partially offset with a reduction of the capitalisation rate, resulting in annual RIIO-ED2 baseline revenues remaining broadly the same as RIIO-ED1.

SP Manweb

Our average RIIO-ED2 baseline revenues will increase by 17% from RIIO-ED1, primarily caused by a reduction in the average capitalisation rate and therefore an increase in the fast pot element and the increased level of investment.

SP Manweb's agreed Pension Deficit Funding will end in 2027/28 and will reduce annual allowed revenues in RIIO-ED3 by £35m[20/21].

The financial inputs

Parameters	Ofgem's SSMD mandated assumptions
Cost of equity	4.65%*
Cost of debt	2.09%
Notional Gearing	60%
Financeability adjustment	None
Capitalisation rate	Natural rate
Dividend yield	3.00%
Credit rating	Baa1 to A3
Other policies	Per Ofgem

Cost of equity adjusted to 4.40% for Base Revenue reflecting 0.25% expected outperformance as per Table 1 in the SSMD.

Based on our current assumptions, we will not need to implement any further financeability adjustments. However, this could change if our input assumptions have to be altered during the business plan process.

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Set by Ofgem, recovered through suppliers

Our revenues are set by Ofgem. They are based on proposed investments and commitments we agree with Ofgem through the business plan process. We recover our revenues through charges to energy retailers which, in turn, are collected through electricity bills.

Our revenues are a combination of elements:
Fixed – based on us delivering agreed outputs in the future
Variable – due to uncertainty about the future, such as the amount of connected generation
Incentives and adjustments from previous years – and price controls.

Allowed Baseline Revenues

Regulatory, £m (2020/21 Prices)

SP Distribution

	23/24	24/25	25/26	26/27	27/28	Total	Averages RIIO-ED2	RIIO-ED1	Variance
Depreciation	169	167	132	131	130	**729**	146	172	*-27*
Return	62	63	64	65	66	**321**	64	64	*0*
Revenue associated with RAV	**231**	**231**	**196**	**197**	**196**	**1051**	**210**	**237**	*-27*
Fast Pot	95	96	98	95	96	**480**	96	47	49
Non-Controllable Opex	67	67	66	68	68	**337**	67	70	*-3*
Equity Issuance Costs	5	0	0	0	0	**5**	1	0	1
Tax allowance	26	20	5	2	0	**53**	11	11	0
Pension Deficit Funding	30	30	0	0	0	**60**	12	33	*-21*
Other	7	5	5	5	6	**28**	6	5	1
Revenue not associated with RAV	**229**	**219**	**175**	**171**	**169**	**964**	**187**	**166**	**21**
Allowed Baseline Revenues	**460**	**450**	**371**	**368**	**366**	**2,015**	**403**	**403**	**0**

SP Manweb

	23/24	24/25	25/26	26/27	27/28	Total	Averages RIIO-ED2	RIIO-ED1	Variance
Depreciation	158	157	156	154	149	**775**	155	166	*-11*
Return	70	72	73	73	72	**360**	72	69	3
Revenue associated with RAV	**228**	**229**	**229**	**227**	**221**	**1,135**	**227**	**235**	*-8*
Fast Pot	107	109	110	107	109	**542**	108	53	56
Non-Controllable Opex	44	44	44	45	45	**223**	45	43	1
Equity Issuance Costs	5	0	0	0	0	**5**	1	1	0
Tax allowance	20	14	10	8	5	**56**	11	3	8
Pension Deficit Funding	31	32	32	32	33	**160**	32	32	0
Other	5	5	5	5	6	**27**	5	0	5
Revenue not associated with RAV	**213**	**204**	**202**	**198**	**197**	**1,014**	**203**	**132**	**71**
Allowed Baseline Revenues	**441**	**433**	**431**	**425**	**418**	**2,148**	**430**	**367**	**63**

*the figures above are calculated using the working assumptions (Inflation etc.), published by Ofgem in the Sector Specific Methodology Decision document – March 2021.
*Cost of equity adjusted to 4.40% for Base Revenue with 0.25% earned through assumed out-performance as per SSMD March 2021.

Cost of Capital

As required by Ofgem's Business Plan Guidance, we have submitted a Business Plan which incorporates Ofgem's working assumption for the Cost of Capital and addresses financeability on the basis of Ofgem's key assumptions.

However, we disagree with a number of aspects of Ofgem's approach in their assessment of the Cost of Capital for RIIO-ED2 which we do not believe has been based on all the available evidence and has been set at a level which may disrupt the efficient financing of the UK's electricity distribution networks sector, limiting the sector's ability to support the country's transition to Net Zero. We explain, in detail, why we disagree with Ofgem's assumptions and present our alternative proposal for the Cost of Capital allowance in Annex 5D.1: Finance.

Establishing Cost of Equity

Cost of equity (CoE) represents the return shareholders require for providing their capital to a company, proportionate to the risk faced by the company. It is the minimum return we need to attract and retain equity financing in our business, so that we're able to fund our investments. It is more important now than ever before to attract the sufficient investment to support GB's transition to Net Zero.

In contrast to the cost of debt, the cost of equity cannot be directly observed. Regulators routinely set a forward-looking allowance for the cost of equity using asset pricing models. Ofgem have relied primarily on the application of the Capital Asset Pricing Model (CAPM) framework for setting the cost of equity for the RIIO-ED2 price control, with forward-looking sources of evidence, such as DGM and infrastructure discount rates, used as a cross-check to the CAPM implied range. The cost of equity cannot be assessed based on a company's financeability. This is a cross-check to ensure the fair return delivers a financeable plan.

Under the CAPM framework, the return required by equity investors consists of the return on a risk-free investment (i.e. the risk-free rate (RFR)) and a risk premium that reflects the risk involved in a particular equity investment. This is estimated as the product of the risk premium on the equity market as a whole (i.e. equity risk premium (ERP)) and the equity beta, a measure of the riskiness of a particular equity investment relative to the equity market. By construction, the ERP is calculated as the residual between the total market return (TMR), which is the expected return on the market portfolio[1], and the RFR. Formally, the CAPM equation for the CoE can be defined as:

Cost of Equity
=
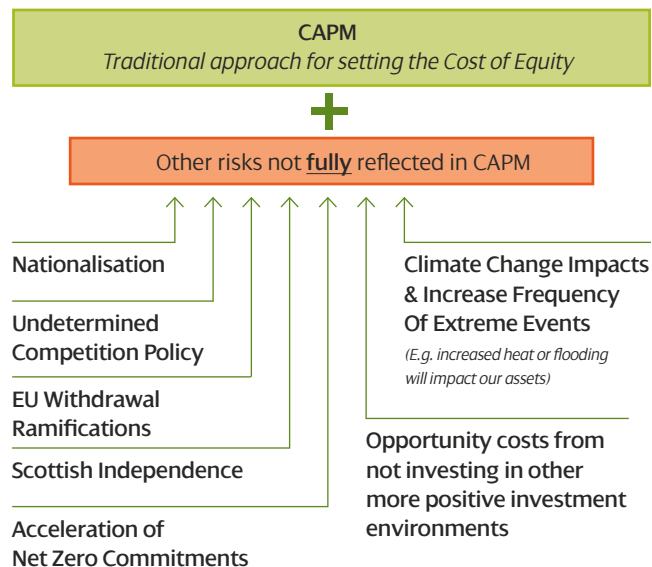### *risk-free rate* + *beta* x *equity risk premium*

In their March 2021 Sector Specific Methodology Decision (SSMD) Finance Annex publication, Ofgem laid out their decision on the methodology for estimating the forward-looking real CoE for the RIIO-ED2 price controls. Ofgem use the mid-point of this range to arrive at their underlying cost of equity estimate of 4.65% (real, CPIH) for a notional gearing of 60% set under market conditions at that time.

Unprecedented by any other regulator, Ofgem apply a downwards 25bps adjustment to the underlying CoE estimate in reaching their allowed Return on Equity working assumption of 4.40% (real, CPIH). The 'Outperformance Wedge' adjustment is based on Ofgem's view that investors expect network companies to outperform the cost and output targets set at the price control, with the solution being a downwards adjustment to companies' CoE starting points. We fundamentally disagree with Ofgem's proposed 'Outperformance

Wedge' adjustment. It is arbitrary and unprecedented, based on a flawed conceptual and evidential basis. It also fails to recognise the existing regulatory mechanisms and tools available to Ofgem that are sufficient and appropriate to target and address any perceived information asymmetry problem. It will undermine investor's confidence in the sector and weaken incentives, ultimately leading to poor consumer outcomes. Our transmission licensee, SP Transmission plc, has appealed Ofgem's implementation of the Outperformance Wedge in the RIIO-T2 Final Determination to the CMA as part of its RIIO-T2 appeals and SPEN rejects its use in the RIIO-ED2 price control.

There are several additional risk factors which are not fully captured within the CAPM framework, but which are ultimately priced in by long-term investors in their required returns when investing in the GB electricity distribution sector, as presented in the table below. Many of these risks are long-term, and will continue to persist and increase well beyond the RIIO-ED2 period. For further detail see Annex 5D.1: Finance.

Establishing the Required Return for Investors

CAPM
Traditional approach for setting the Cost of Equity

+

Other risks not **fully** reflected in CAPM

- Nationalisation
- Undetermined Competition Policy
- EU Withdrawal Ramifications
- Scottish Independence
- Acceleration of Net Zero Commitments
- Climate Change Impacts & Increase Frequency Of Extreme Events *(E.g. increased heat or flooding will impact our assets)*
- Opportunity costs from not investing in other more positive investment environments

Establishing Cost of Debt

Electricity network companies need revenue to service their long-term embedded and expected new debts, and this needs to reflect the actual costs of financing this efficiently incurred debt.

In RIIO-ED1, Ofgem adopted an indexation approach for determining the allowed cost of debt, whereby the allowance was benchmarked annually against a predefined index. The chosen index was a 10-20-year Trombone trailing average of the outturn yields of the iBoxx A and BBB rated sterling non-financial bond indices with a maturity of more than ten years.

In their SSMD Finance Annex publication, Ofgem base their working assumption on a 17-year trailing average of the iBoxx GBP Utilities 10+ index, less the OBR's 5-year expectation of CPI inflation, plus a 25bps allowance for additional borrowing costs. Ofgem's move to using the iBoxx Utilities index rather than the RIIO-1 indices is in line with their decision for the RIIO-T/G2 price controls. Ofgem's working assumption results in an average Cost of Debt for RIIO-ED2 of 2.09% (real, CPIH).

We support the recalibration of the debt allowance mechanism for RIIO-ED2 to adhere to Ofgem's new index selection for RIIO-ED2. Following companies submitted borrowing requirements in their business plan submissions, the appropriate debt calibration for the ED sector can be assessed.

1. The market portfolio is a portfolio consisting of all stocks where the proportion invested in each stock corresponds to its relative market value. Measured by a broad market index such as the FTSE All-share.

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Notional gearing and return on regulatory equity (RoRE)

Over the following pages we assess notional gearing in the context of the financial benefits and penalties available to the network companies in RIIO-ED2 from outperforming or underperforming the price control assumptions. Notional gearing represents the assumed percentage of net debt to RAV for the notional company. This in turn impacts the percentages of RAV that attract debt and equity allowances. Setting notional gearing is complex, bringing together many issues and interactions. The diagram below illustrates the key inputs involved and their relationship.

SPD and SPM RIIO-ED1 and RIIO-ED2 comparison

	RIIO-ED2	RIIO-ED1
Notional Gearing	60%	65%

1. Cash flow volatility

Cash flow volatility is affected by: Scale of investment, Capitalisation rate, Profile of expenditure, Totex incentive rate (1-Sharing Factor), Other incentive mechanisms and rates, Uncertainty mechanisms. Scale and profile of expenditure is largely determined externally by the requirement to meet present and anticipated outputs – to deliver a secure and efficient network.

The RIIO-ED2 uncertainty mechanisms and incentive characteristics are yet to be finalised. We have not departed from the overall framework set out by Ofgem and have not sought to adjust cash flow risk.

In line with guidance we have proposed a decrease from the current RIIO-ED1 capitalisation rate of 80% to a rate of 72% [SPD] and 70% [SPM] for RIIO-ED2. This capitalisation rate more closely aligns with the mix of capital and operational expenditure that will be delivered in the RIIO-ED2 period – it also aligns with the working assumptions provided as part of the Ofgem RIIO-ED2 sector specific methodology decision (SSMD).
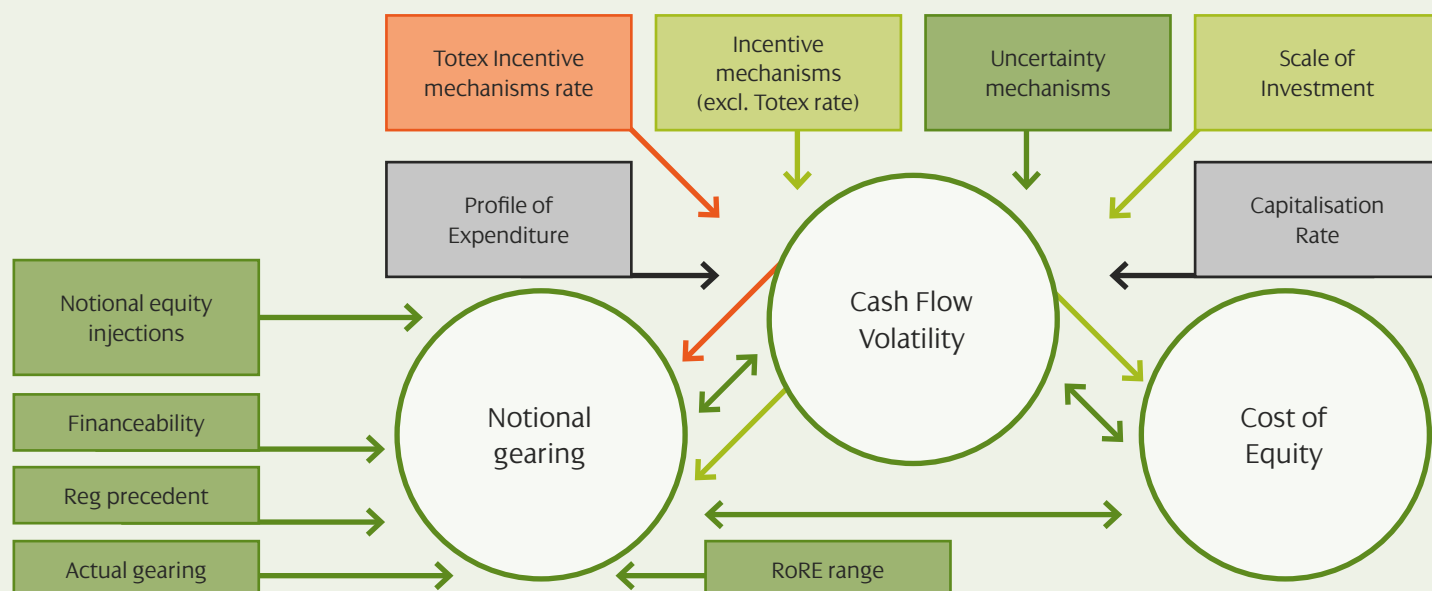
2. Cost of equity

The extent to which the cost of equity can be flexed is externally limited by the minimum expected return required by the market to secure investment. This cost of equity is dependent on the systematic (non-diversifiable) risk as reflected (under CAPM) in the asset beta. Further detail is available in the CoE section on the previous page.

3. Notional gearing

In this section we introduce a central base scenario for gearing of 60%, as set out in Ofgem's sector specific methodology decision along with two alternatives of ±5% (i.e. 55% and 65% gearing). It therefore remains to ensure that, given the above externally determined factors, the idiosyncratic risk for a notional average network business at a given level of gearing will, when exposed to the full range of RIIO-ED2 incentives and external risk, lead neither to excessive returns for shareholders nor to financial distress.

The current proposal of 60% gearing for RIIO-ED2 sectors represents a 5% decrease from RIIO-ED1.

Ofgem has suggested adopting sector-specific notional gearing if it would enable the maintenance of appropriate credit metrics under a wide range of market conditions. We explore this further in our financeability and risk assessments. Taking these factors into account, 60% gearing with a ±5% variation is the base scenario we have used to carry out our detailed overall financeability testing.

Having identified a starting range for our gearing assessment, we then introduce a range of plausible outperformance or under-performance outcomes aligning with the RoRE ±2% scenarios provided in the price control financial model.

This allows us to stress-test our proposed level of notional gearing by examining the overall range of returns to which SPD and SPM will be exposed. In line with the SSMD on regulatory adjustment mechanisms (RAM's), we aim to calibrate the RoRE within the 300bps range as a maximum, with returns around the level of the Cost of Debt index at the minimum.

We later further validate our conclusion on notional gearing by simulating the external risks to cash flows and the resulting impact on business financeability (by Monte Carlo, using Moody's credit rating methodology). This further credit rating testing is described fully in the Financeability assessment section on page 170.

Setting notional gearing

4. Return on Regulatory Equity (RoRE)

At this stage we conduct RoRE analysis. This estimates the financial benefits and penalties available to the notional network company in RIIO-ED2 from outperforming or under-performing the price control assumptions.

In accordance with Ofgem's Sector Specific Methodology Decision for RIIO-ED2 and the RIIO principle, the overall financial package should ensure a fair return to shareholders (as measured by the return on the notional proportion of the RAV that is financed by equity), with a minimum return around the cost of debt.

The RoRE calculation is forward-looking. We use RIIO-ED2 average RAV values and average allowed revenue determined by Ofgem's Business Plan Financial Model (BPFM) in our calculation.

We recognise the draft nature of the incentive assumptions due to the ongoing price control refinements and therefore represent an overall incentive package of ±2% RoRE as per the BPFM scenarios. We expect that these inputs will be revised as we approach the draft and final determinations in 2022.

The assumptions underlying our RoRE analysis are summarised below:

RoRE Analysis – *Assumptions made for RIIO-ED2*

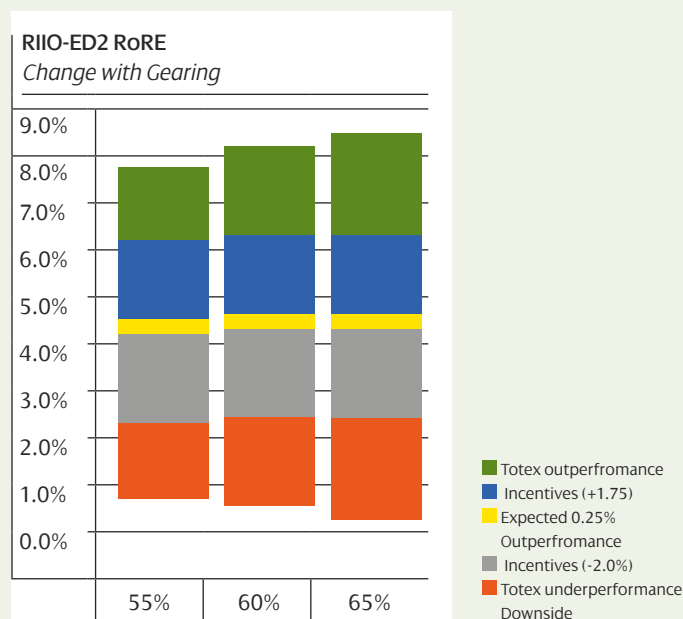| Input	SP Distribution	SP Manweb	Source
Base Revenue (Annual Average)	403	430	Calculated by BPFM (20/21 prices)
Equity RAV (Annual Average)	888	991	Calculated by BPFM (20/21 prices)
Gearing	60%	60%	Per Ofgem SSMD (March 21)
Sharing Factor	50%	50%	Provided by Ofgem in PCFM
Totex (Annual Average)	316	331	Per Ofgem SSMD (March 21)
BP Incentive	± 2% Totex		Per Ofgem SSMD (March 21)
Totex Uncertainty	± 10%		Per Ofgem SSMD (March 21)
Incentives	± 2% RoRE		Per Ofgem SSMD (March 21)

In line with the Sector Specific Methodology Decision document, the BP incentive value is removed from the calculation of the RoRE.

We show the relative impact of the most material RIIO-ED2 risks as basis points of RoRE in the Tornado chart below:

Revenue Risk Factors – *60% gearing*

Totex outperformance / underperformance	-172	172
Expected 0.25% outperformance		25
Incentives	-200	175

Combined, these individual risks determine the overall range of feasible RoRE performance in RIIO-ED2. We present this as a 'layer cake' below, showing a range of gearing.

RIIO-ED2 RoRE
Change with Gearing

- Totex outperfromance
- Incentives (+1.75)
- Expected 0.25% Outperfromance
- Incentives (-2.0%)
- Totex underperformance Downside

Our view

Our key conclusion is that the range of feasible RoRE at 60% gearing extends from a maximum of 8.1%, down to a minimum of 0.7%. This compares with an average Cost of Debt at 2.09% in RIIO-E2. These values exclude the Business Plan incentive as per Ofgem's working assumptions.

Our analysis indicates that the draft price control RoRE range is below the 300bps set via the RAM's methodology. This represents a substantial decrease in the total RoRE achievable when compared with the RIIO-ED1 period.

We've carried out analysis to find out if the draft gearing assumptions are set at an optimal level, alongside the effect of varying the gearing up or down in 5% increments. The impact of these changes in gearing is shown in the table below.

RoRE range comparison

Gearing	Outperformance RoRE	Downside Cover
55%	7.9%	0.9%
65%	8.1%	0.7%
65%	8.4%	0.4%

At 65% gearing the modelled downside of 0.4% is a considerable risk to shareholders. If these parameters were to be implemented a lower gearing should be implemented to calibrate the downside cover closer to the CoD.

Future analysis is required after the incentive package is agreed which should allow the possibility of reasonable returns without excessive downside risk and at the lowest overall cost to consumers.

Welcome to our plan

Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

Assuring our RIIO-ED2 Business Plan

Summary

Financeability – *key assumptions and headline proposals*

We conclude that we require a CoE that enables us to attract and retain sufficient equity finance to provide the necessary investment to maintain network reliability and absorb the forecast expenditure volatility, as we facilitate the transition to a low-carbon economy.

As per the SSMD, our financial modelling, we assume that the cost of debt is 2.09% which is the average value of the iBoxx 17 year trailing average. However, the allowed Cost of Debt (CoD) is set in real terms and our debt is primarily nominal (that is the coupon includes an inflation component). Our financeability analysis indicates that this mis-match contributes to declining financial ratios.

To support the process of assessing financeability, we have engaged economic consultants including NERA. Within this section we present our financial plan based on the Ofgem's assumptions, shown in the financial inputs table below. Our plan results in an investment-grade credit rating on Moody's rating scale which is consistent with the range that underpins Ofgem's CoD index. The current assumptions provide a credit rating that is weaker by one notch when compared with RIIO-ED1.

We consider further external risks which, if they were to materialise, would also result in a lower rating and represent material downside risk. In having regard to the impact of its decisions on existing and future consumers, as well as financeability, Ofgem will have to consider a range of evidence and perform cross checks, for example, by looking at proxies of rating agencies' assessments.

Financial Parameters

Inputs	Ofgem's SSMD mandated assumptions
Cost of equity (real)	4.65%*
Cost of debt (real)	2.09%
Notional Gearing	60%
Vanilla WACC	3.11%
Asset lives	Held at 45
Capitalisation rate	Natural rate
Additional Income (BPO Incentive)	N/A
Equity injection threshold	5.0%
Dividend % of notional equity	3.0%

*Cost of equity adjusted to 4.40% for Base Revenue reflecting 0.25% expected outperformance as per Table 1 in the SSMD.

Target credit rating

We have assessed the credit ratings for SP Distribution and SP Manweb on both a notional and actual basis against our target overall rating of A3 to Baa1 before risk. This makes sure our financeability criteria are fully consistent with credit quality underpinning the allowed cost of debt index, which equally weights A and BBB (S&P) rated non-financial sterling bonds.

This is also consistent with our licence obligation to maintain an investment-grade credit rating.

Failure to ensure alignment with the index would lead to greater costs to the consumer; if the notional company was only to achieve a Baa rating then the index should be changed to ensure the CoD matches the rating for each company. This would increase the CoD assumed for the notional company and increase the annual revenues that each company would collect to ensure that the higher cost of debt is recovered. There are also further issues with allowing the rating to slip into the Baa range, with higher costs to the businesses in relation to weakening credit ratios. This again would make it more expensive for all DNOs to raise debt to finance required investment which is not in the consumers' interest. Finally, a lower rating for the notional company on a base case would lead to less headroom to deal with external shocks that are outwith the companies control (for example Macro Economic changes). These changes could lead to a significant weakening of the financial health of the network operator and lead to greater risk of problems in delivery of the proposed RIIO-ED2 outputs that are of great benefit to the general consumer. These scenarios are examined later in the chapter.

As explained in our Financeability assessment section, we have taken into account the full range of credit rating factors, not just credit metrics. This means that the scores for individual sub factors may be outside A3 or Baa1, and could fall outside the wider investment grade range of A1 to Baa3 (A to BBB range in S&P ratings).

To clarify, this means that we are not currently targeting an A3/Baa1 rating for all Credit ratios, but we are targeting ratios that will allow us to score an overall rating of A3/Baa1. This is explained in more detail in the Financeability assessment section.

Ofgem's economic model assesses an individual standalone company, and Ofgem has a statutory duty to have regard to the need to ensure that licensees can finance their licensed activities – meaning they are allowed sufficient cash flows to pay interest and dividends to the providers of finance. Financeable also means that a company needs to be able to raise the required financing in the financial markets in order to deliver its licence commitments and expected expenditure resulting from the RIIO-2 price control settlement.

SP Distribution and SP Manweb are competing in the financial markets with other electricity and gas network companies. To compete on equal terms, it is important that our implied credit ratings as part of the final proposals are no worse than the implied credit ratings afforded to other networks in the previous RIIO price control settlements, which were set using a similar cost of debt index.

Based on Moody's rating methodology1 for regulated electric and gas networks, the RIIO-ED1 price control resulted in an implied 8-year rating of A3 – this is explained in the RIIO Regulatory precedent section.

Therefore, the RIIO-2 final proposals for electricity distribution need to achieve a comparable credit rating.

One of the main impacts within the move to the RIIO-ED2 methodology was Ofgem's decision to transition the measure of inflation from the Retail Price Index (RPI) to the Consumer Price Index (CPI/CPIH). This move has been deemed appropriate due to RPI no longer representing the official measure of inflation in the UK.

In theory, any change in the inflation index used for price setting purposes should be revenue-neutral, as long as the same inflation index is used to calculate the real cost of capital and to index the RAV over time, the choice of inflation index has no impact on the net present value of revenues charged to customers.

However, the inflation index determines the balance between the amounts recovered within period versus those deferred into the future. As a result, it affects the profile of bills over time – referred to as intergenerational fairness. This impact will be of significant interest to a wide variety of stakeholders, and it is of vital importance that they understand the full impact of the move to CPIH and are fully briefed on its NPV neutral nature.

Ensuring efficient financing costs – Price Control Financial Model ('static') analysis

In this section we present our financing plan based on the draft assumptions and primary analysis; we refer to this as our 'static' analysis. This is in contrast to our 'probabilistic' risk assessment, presented later in this section, which applies the Monte Carlo model to analyse the likely impact of external risks to our financeability ratios. As part of the compliant plan, we have used the Business Plan Financial Model issued by Ofgem on 2nd June 2021 which is still under development. This model has not been subject to full diligence and audit. In this section we also generate and test our regulatory credit ratios. 'Static' refers to the fact that we introduce a number of financing components and assumptions, then test the outcomes to ensure that an efficient, financeable plan can be demonstrated using Ofgem's Business Plan Financial Model (BPFM). We will submit the BPFM alongside our Business Plan submission in line with Ofgem's guidelines.

We have explained our allowed return financing components in this section. You can find further explanation of our other assumptions and policies in our Financeability assessment section.

Our overriding objective has been to deliver an efficiently financeable plan that will offer an adequate return to investors at the lowest possible cost to customers. This results in the following credit rating based on Moody's 2017 rating methodology for regulated electric and gas networks.

Credit Rating

	SPD	SPM
Moody's notional credit rating	Baa1	Baa1

The key ratios forming these results are detailed under our Key credit ratios section in the comparison of credit ratios to RIIO-ED1.

For the 'static' analysis that informed the credit rating above we have assumed Business Plan Incentive additional income of zero.

It's possible that Ofgem's view of the efficiency of our Totex proposals may result in a penalty with a resultant risk to our financeability. This would be in addition to the penalty applying under the Totex incentive mechanism if we have to spend in excess of the allowance in order to deliver our outputs and, importantly, make sure we meet our licence obligations around continuity of supply.

Capitalisation rate

The average capitalisation rates of 72% [SP Distribution] and 70% [SP Manweb] in our business plan are reductions from historic levels of 80% in RIIO-ED1. They are in line with expected statutory capex over the RIIO-ED2 period, reflecting the natural rate as requested in Ofgem's Finance SSMD. You can find total expenditure and capitalisation section on page 175.

Asset lives and depreciation

We believe the overall package should be calibrated to enable an efficient financing plan which maintains an investment grade credit rating, without employing additional financial levers. This basis may need to be reviewed after the draft determination. You can read more about asset lives and depreciation in our Evolution of the Regulatory Asset Value (RAV) section on page 175.

RIIO Regulatory precedent

As mentioned in our analysis of the target credit rating, the RIIO price control proposals for regulated electric and gas network companies result in an implied rating of Baa1/A3 based on Moody's rating methodology.

In the next section, we set out how we have followed Moody's rating methodology for SP Distribution and SP Manweb and have mainly assumed that the qualitative factors applied in both RIIO-1 and RIIO-2 price control proposals are the same.

Implied Credit Ratings

In our assessment of the implied credit ratings, we have mainly assumed that the qualitative factors are the same as those that we applied in RIIO-ED1. These qualitative factors have a weighting of 60% and contribute broadly the same score for all companies to the overall credit rating score.

The remaining factors that influence the final rating score are the four key credit metrics used in Moody's methodology. Together these have a weighting of 40% and could have a significant impact on the overall score.

Financeability assessment

In the main we have followed Moody's rating methodology for regulated electric and gas networks. This approach considers credit metrics and qualitative factors, for example business risk and regulatory environment. Moody's stated objective is for users of this methodology to be able to estimate a company's rating within two alpha-numeric notches.

Moody's analysis focuses on four key rating factors. These are:

- Regulatory environment and asset ownership model
- Efficiency and execution risk
- Stability of business model and financial structure
- Key credit metrics

A fifth factor focuses on structural considerations of debt. This is assessed on features that contribute to the likelihood of default such as complexity and creditor influence. Together, these qualitative features act as an overlay against any score that may be derived from the first four factors. We do not expect this factor would have a material impact on the overall credit score derived from our analysis.

Each factor is made up of a number of sub-factors, to each of which Moody's assigns a weighting.

First, we set out our assessment of sub-factors as shown in the table below. Our assessment of the key credit metrics is set out later in this section, following on from our financial modelling.

In arriving at our Moody's notional credit rating score, we have maintained the non-credit metric ratio factors at the same level as our RIIO-ED1 assumptions. This is in line with the updated methodology published in 2017. Recent events may influence a reduction in the future assessment of these qualitative factors to the detriment of the stated score's below. We will continue to monitor the credit rating agencies guidance and will update our analysis if required.

The tables below summarise our assessment:

Rating Factors for SP Distribution & SP Manweb

Rating Factors	Aaa	Aa	A	Baa	Ba	B
Factor 1: *Regulatory Environment & Asset Ownership Model (40%)*						
a) Stability and Predictability of Regulatory Regime	X					
b) Asset Ownership Model		X				
c) Cost and Investment Recovery			X			
d) Revenue Risk		X				
Factor 2: *Scale & Complexity (10%)*						
a) Scale and Complexity of Capital Programme				X		
Factor 3: *Financial Policy (10%)*						
a) Financial Policy & Behaviours				X		

N.B. The values for the key credit metrics that comprise Factor 4 are calculated as part of the financeability assessment later in this section.

Key credit ratios – Factor 4

Credit metric ratios account for 40% of rating agencies' rating assessment, and so have a significant impact on the overall rating. It is worth noting that Moody's rating methodology takes the average of the worst three consecutive years in assessing an overall rating for a particular ratio.

We ran two metric tests, one notional one actual, when developing our plan and here is what we found.

Notional company with Ofgem's draft assumptions (CoE at 4.65%)
Key Credit Metrics

SP Distribution	Weighting	RIIO-ED2 Avg	RIIO-ED2 Rating	RIIO-ED1 Avg	RIIO-ED1 Rating
Adjusted Interest Cover	10.0%	1.36	Ba	1.37	Ba
Net Debt / RAV	12.5%	63.2%	Baa	63.3%	Baa
FFO / Net Debt	12.5%	11.9%	Ba	15.3%	Baa
RCF / Net Debt	5.0%	9.5%	Baa	12.6%	Baa
Rating Including Rating from Grid Factors 1-4		7.74	Baa1	7.32	A3

RIIO-ED2 Period	23/24	24/25	25/26	26/27	27/28
Adjusted Interest Cover Ratio	1.36	1.36	1.35	1.35	1.36
Net Debt to Closing RAV	60.7%	61.8%	63.3%	64.5%	65.7%
FFO / Net Debt	15.3%	14.3%	10.7%	10.0%	9.3%
RCF / Net Debt	12.9%	11.9%	8.3%	7.7%	7.0%

SP Manweb	Weighting	RIIO-ED2 Avg	RIIO-ED2 Rating	RIIO-ED1 Avg	RIIO-ED1 Rating
Adjusted Interest Cover	10.0%	1.36	Ba	1.29	Ba
Net Debt / RAV	12.5%	63.0%	Baa	66.0%	Baa
FFO / Net Debt	12.5%	11.3%	Ba	13.0%	Baa
RCF / Net Debt	5.0%	9.0%	Baa	10.4%	Baa
Rating Including Rating from Grid Factors 1-4		7.74	Baa1	7.32	A3

RIIO-ED2 Period	23/24	24/25	25/26	26/27	27/28
Adjusted Interest Cover Ratio	1.36	1.36	1.35	1.36	1.39
Net Debt to Closing RAV	60.8%	62.3%	63.4%	64.0%	64.5%
FFO / Net Debt	12.9%	11.9%	11.2%	10.7%	10.0%
RCF / Net Debt	10.5%	9.6%	8.8%	8.3%	7.6%

The RIIO-ED2 notional company, calculated using Ofgem's draft assumptions, produce an overall rating of Baa1 for both SP Distribution and SP Manweb. The overall grades are one notch lower than the notional company at RIIO-ED1, driven by the weakening of both FFO/net debt and RCF/net debt ratios. Both remain above the investment grade rating floor of 11% and 7% respectively on average, however FFO/Net Debt weakens below investment grade in individual and 3-year minimum average periods. The impact of the strength of these metrics in relation to external shocks will be examined as part of our risk assessment analysis in Efficiency and financeability.

It should be noted that the values in the table above assume that 25% of debt is index linked (ILD). This has the effect of strengthening the Adjusted Interest Cover Ratio (AICR) and the overall rating. If the assumption, in line with SP Distribution and SP Manweb's actual debt portfolio was, that none of the notional companies debt was index linked, the AICR would further weaken outside of investment grade to 1.19x and 1.20x respectively.

A further consideration is required in regard to the long term financeability of both SP Distribution and SP Manweb based on the draft assumptions provided by Ofgem. The move to CPIH for example may provide a boost to short term metrics but will weaken any long-term outlook based on the reduction in the growth of the RAV in future periods. Ofgem has stated the long-term outlook should be addressed at a future price control.

Both notional companies require equity injections at the start of RIIO-ED2 to account for the proposed reduction in gearing from 65% to 60%. However, this assumes the returns are adequate to incentive the investment of additional capital by shareholders at this point.

Actual company with Ofgem's draft assumptions (CoE at 4.65%)
Key Credit Metrics

SP Distribution

| | | RIIO-ED2 | |
	Weighting	Avg	Rating
Adjusted Interest Cover	10.0%	2.13	A
Net Debt / RAV	12.5%	63.6%	Baa
FFO / Net Debt	12.5%	12.7%	Baa
RCF / Net Debt	5.0%	11.0%	Baa
Rating Including Rating from Grid Factors 1-4		6.83	A3

RIIO-ED2 Period	23/24	24/25	25/26	26/27	27/28
Adjusted Interest Cover Ratio	2.33	1.80	1.85	2.44	2.22
Net Debt to Closing RAV	62.9%	63.2%	63.9%	64.0%	64.2%
FFO / Net Debt	16.3%	14.5%	11.3%	11.2%	10.4%
RCF / Net Debt	14.5%	12.7%	9.5%	9.5%	8.7%

SP Manweb

| | | RIIO-ED2 | |
	Weighting	Avg	Rating
Adjusted Interest Cover	10.0%	2.20	A
Net Debt / RAV	12.5%	62.5%	Baa
FFO / Net Debt	12.5%	12.7%	Baa
RCF / Net Debt	5.0%	10.8%	Baa
Rating Including Rating from Grid Factors 1-4		-	-

RIIO-ED2 Period	23/24	24/25	25/26	26/27	27/28
Adjusted Interest Cover Ratio	2.77	2.38	1.99	1.84	2.04
Net Debt to Closing RAV	62.5%	62.4%	62.7%	62.5%	62.3%
FFO / Net Debt	15.0%	13.6%	12.1%	11.6%	11.1%
RCF / Net Debt	13.1%	11.7 %	10.3%	9.7%	9.2%

Efficiency and financeability

We have worked with NERA to develop a financeability risk model. The model is based on Ofgem's Price Control Financial Model and helps support our assertion that our proposed financing package is not just efficient, but robust.

We attach a paper describing NERA's modelling methodology contained within Annex 5D.6: NERA – Risk Modelling for RIIO-ED2.

We have used the model to assess if the suggested financeability scenario delivers an efficient, robust financeable plan. To do this, our model uses the Monte Carlo method to simulate the individual and aggregate credit metrics over the full range of plausible outcomes. The model does this for every individual risk we have identified.

The model considers the risk to cash flows from external risks only – where possible, we have identified the plausible distribution of outcomes for an average network business. In conjunction with our RoRE analysis, this should make sure the business is sufficiently and securely funded, so that the normal operation of RIIO-2 incentives is unlikely to lead to financial distress when coupled with adverse shocks from external risks.

For us, a robust plan is one that makes sure the expected overall credit rating for a notional average distribution business will be solidly within the A to Baa (Moody's) range of credit rating. ('Overall' means we include non-financial ratio components.)

Under any realistic combination of adverse external outcomes, there should only be a small probability that this rating might drop to a level inconsistent with the allowed Cost of Debt. More specifically, we target an overall credit rating of A3 or Baa1. This is also consistent with SP Distribution and SP Manweb's license obligations to maintain an investment grade credit rating.

Initial assumptions

Before conducting our financeability testing, we have considered each of the components of the allowed return. This provides us with the opening parameters for our risk and financeability testing that we established earlier.

We have followed Ofgem's guidance for RIIO-2 regarding SSMD when we calculated the notional inputs.

	Inputs
Cost of equity	4.65%
Cost of debt	2.09%
Gearing	60%
Dividend Yield	3.00%
Asset Lives	Held at 45 years
Capitalisation Rates [SPD / SPM]	72% / 70%

Each unique combination of these inputs constitutes a single scenario. For each scenario, a network business will be exposed to a range of financial risks. Some of these risks will be external to the business, and some will arise from regulatory mechanisms specific to the price control. For example, incentives, output mechanisms and residual risk may be only partly mitigated by uncertainty mechanisms.

Our financeability assessment

We test the robustness of our financial plan only against external risks not directly within our control. The external risks we consider are:

Risk	Modelling approach
Totex Uncertainty	±10% of base assumption for 10-90th percentile applying a triangular distribution.
Non-controllable Opex Uncertainty	±10% of base assumption for 10-90th percentile applying a triangular distribution.
CPIH Uncertainty	Simulated based on OBR forecast uncertainty ranges.
Taxation	Actual and allowed tax modelled bottom-up.
Cost of Debt Indexation	Based on modelled uncertainty in the real RFR given historical variation and relationship between RFR and debt spread. We use Ofgem's trailing average approach.
Cost of Equity Indexation	Based on modelled uncertainty in the real RFR given historical variation and Ofgem base Cost of Equity parameters.
Sharing Factor (Consumer Share)	50%
Dividend Yield	3.00%
Equity Issuance	None
Base Cost of Equity	4.65%
Incentive Uncertainty	±2% (max/min) of RoRE based on triangular distribution (calibrated such that RoRE max/min is ±300bps together with Totex uncertainty assuming a triangular distribution).
Totex Capitalisation Rate	72% [SPD] / 70% [SPM]
Proportion of inflation-linked debt	25%

We simulate a set of outcomes using Monte Carlo. For each iteration of the Monte Carlo Model we calculate the credit metrics and use these to derive an overall credit rating using Moody's' methodology (as described in the Financeability assessment section).

Moody's methodology applies significantly greater weights to components of the overall calculation. These are closer to the low rating end than to components at A or above, so the distribution of rating outcomes is strongly asymmetric.
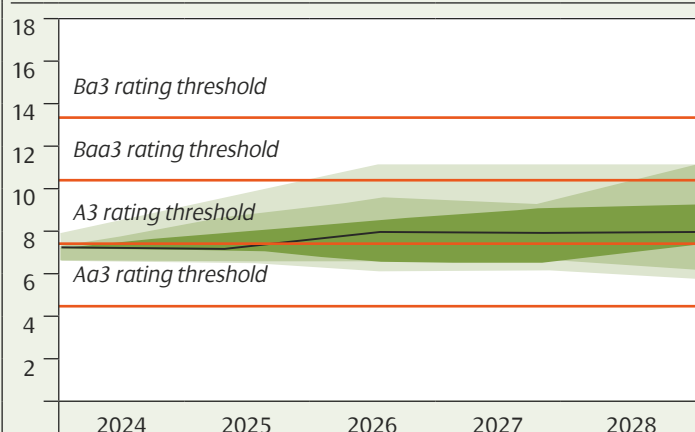
Risk Assessment Results – notional basis

The distribution of credit rating outcomes, for SPD and SPM, generated by simulation is shown as a fan chart below:

SPD credit rating including external risk
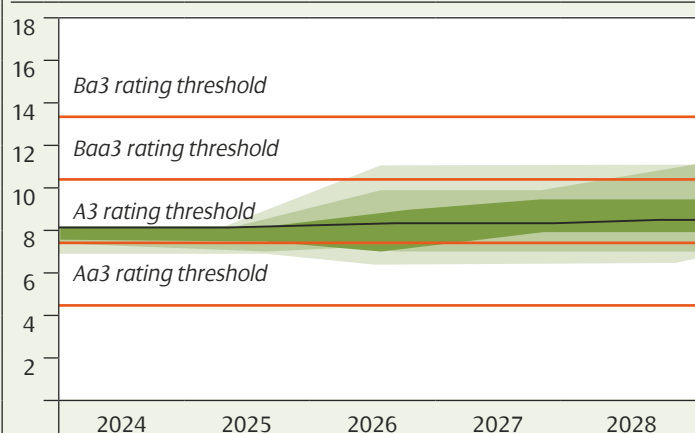
SPM credit rating including external risk

Conclusion

Based on Ofgem's SSMD parameters there is a substantial downside risk for both of our DNO's credit ratings, including the risk of sub investment grade rating. This demonstrates Ofgem's financial package is not financeable and needs to be modified to improve headroom against the plausible distribution of outcomes for an average network business.

Using Ofgem's methodology, at the median position shown as a dark line, we are forecasting we will maintain an investment grade-credit rating consistent with the allowed cost of debt. However as indicated in the graph above, our modelling predicts that there is realistic prospect, based on external risks, that the overall rating has the potential to decline to a sub investment grade level. This indicates that the current parameters may lead to an outcome, at a low probability, which would see the rating for SP Distribution and SP Manweb that is inconsistent with the CoD index as explained in the sections above.

We have also undertaken this analysis using our proposed CoE of 6.21%, with the results showing a compliant investment grade. For us, this demonstrates a robust plan where the expected overall credit rating for a notional average distribution business will be solidly within the A to Baa (Moody's) range of credit rating. Further analysis is contained within the Financeability section of Annex 5D.1: Finance.

Ofgem Deterministic analysis

We have also undertaken the prescribed deterministic analysis of financeability for the notional company to demonstrate the movement in our credit ratios and the overall credit rating per Moody's methodology set out earlier. The sixteen scenarios used are listed in the table below:

Notional company with Ofgem's draft assumptions
SP Distribution

Key Credit Metrics	Capex to RAV (%)	AICR (x)	Net Debt to Closing RAV (%)	FFO / Net Debt (%)	RCF / Net Debt (%)	Overall Rating
Static Values	11.5%	1.36	63.2%	11.9%	9.5%	Baa1
Interest Rate +1%	11.5%	1.38	62.9%	12.1%	9.7%	Baa1
Interest Rate -1%	11.5%	1.34	63.5%	11.7%	9.4%	Baa1
CPIH +1%	11.5%	1.39	62.0%	12.2%	9.6%	Baa1
CPIH -1%	11.5%	1.36	63.3%	11.9%	9.7%	Baa1
High CPIH inflation divergence +0.5%	11.5%	1.37	62.7%	12.0%	9.7%	Baa1
Low CPIH inflation divergence -0.5%	11.5%	1.37	62.7%	12.0%	9.5%	Baa1
High RPI inflation divergence +0.5%	11.5%	1.36	63.1%	11.9%	9.6%	Baa1
Low RPI inflation divergence -0.5%	11.5%	1.36	63.3%	11.9%	9.5%	Baa1
Totex 10% outperformance	11.1%	1.78	60.2%	14.0%	11.5%	A3
Totex 10% underperformance	12.0%	1.01	63.7%	10.5%	8.1%	Baa2
No RoRE outperformance	11.5%	1.31	63.5%	11.7%	9.3%	Baa1
RoRE (through incentives) +2%	11.5%	1.76	60.9%	13.7%	11.2%	A3
RoRE (through incentives) -2%	11.5%	1.01	63.3%	10.6%	8.3%	Baa2
Proportion of inflation linked debt +5%	11.5%	1.40	63.2%	12.0%	9.5%	Baa1
Proportion of inflation linked debt -5%	11.5%	1.32	63.2%	11.8%	9.5%	Baa1

Welcome to our plan

Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

Assuring our RIIO-ED2 Business Plan

Summary

SP Manweb

Key Credit Metrics	Capex to RAV (%)	AICR (x)	Net Debt to Closing RAV (%)	FFO / Net Debt (%)	RCF / Net Debt (%)	Overall Rating
Static Values	10.5%	1.36	63.0%	11.3%	9.0%	Baa1
Interest Rate +1%	10.5%	1.39	62.7%	11.5%	9.2%	Baa1
Interest Rate -1%	10.5%	1.34	63.3%	11.1%	8.8%	Baa1
CPIH +1%	10.5%	1.39	61.7%	11.6%	9.0%	Baa1
CPIH -1%	10.5%	1.36	63.2%	11.3%	9.2%	Baa1
High CPIH inflation divergence +0.5%	10.5%	1.35	63.5%	11.2%	9.0%	Baa1
Low CPIH inflation divergence -0.5%	10.5%	1.37	62.5%	11.4%	8.9%	Baa1
High RPI inflation divergence +0.5%	10.5%	1.37	62.9%	11.4%	9.0%	Baa1
Low RPI inflation divergence -0.5%	10.5%	1.36	63.1%	11.3%	8.9%	Baa1
Totex 10% outperformance	10.0%	1.76	60.1%	13.3%	10.9%	A3
Totex 10% underperformance	10.9%	1.04	63.3%	10.0%	7.7%	Baa2
No RoRE outperformance	10.5%	1.31	63.3%	11.1%	8.8%	Baa1
RoRE (through incentives) +2%	10.5%	1.77	60.7%	13.1%	10.7%	A3
RoRE (through incentives) -2%	10.5%	1.02	63.1%	10.1%	7.7%	Baa2
Proportion of inflation linked debt +5%	10.5%	1.40	63.0%	11.4%	9.0%	Baa1
Proportion of inflation linked debt -5%	10.5%	1.33	63.0%	11.2%	9.0%	Baa1

Our analysis indicates that after testing against these potential scenarios, the overall ratings for SP Distribution and SP Manweb remain consistent with the base case static view of Baa1 in most cases. However, that does not mean that these scenarios do not impact the individual ratios and the strength of the overall rating. As explained in the previous section, none of the individual ratios above achieve a rating of A3 or above in our base scenario. Furthermore, these ranges should be treated with caution given the financial model is still under development.

SPD and SPM Deterministic analysis findings:

CPIH scenario; measures the impact to a company's net debt and cash flows based on movements in the inflation rate (Primarily the Interest & tax payments). The AICR ratio remains at Ba for both CPIH inflation divergence scenarios which is below investment grade levels.

RPI-CPIH Wedge: This has a similar impact to the CPIH scenarios above. It tests the impact of a divergence in the RPI-CPIH inflation rates by flexing the CPIH rate against a constant RPI rate. Therefore, an increase in the divergence of 0.5% would be the same as decreasing the CPIH rate by 0.5%.

Totex Scenario: Of concern, for Totex underperformance, the overall rating moves from Baa1 in Base case to Baa2, with some individual and 3-year average periods landing at Baa3. Of concern, AICR remains at B throughout, with FFO / Net Debt and RCF / Net Debt both rated Ba for most years. This is the worst performing scenario in the test further evidencing the significant lack of headroom provided in the SSMD working assumptions. For Totex outperformance, all ratios improve versus the base case as expected, due to the additional revenue provided via the sharing factor mechanism.

RoRE Scenario: Of equal concern to the scenario above, for 2% underperformance, the reduction in revenues lowers the AICR, FFO and RCF ratings to below investment grade metric levels and overall Baa2, before externals risks are considered. The calibration of incentives will need to reflect notional financeability considerations to ensure the RoRE is at least above the cost of debt on downside scenarios. We see a large spread in the ratios under these two scenarios with all ratios improving under the 2% outperformance scenario.

ILD Scenario: Finally, the index-linked debt scenario measures the impact of a movement of 5% on the base assumption of 25% of company debt of which the interest related payment is linked to inflation. The AICR weakens with any decrease in the proportion of inflation linked debt. We do not believe this scenario is relevant for SP Distribution or SP Manweb as we currently do not have any inflation linked debt and are not forecasting that this will change.

Interest rate scenario: The impact on revenues (especially return & tax) and movements in Net debt (interest payments due) is as a result of interest rate movements. On a notional basis, a move of 1% downward would result in a lower CoD index, and associated revenue allowance, slightly weakening all ratios. For example FFO / Net Debt, as in SPDs base case, and AICR and FFO / Net Debt in SPM move below investment grade levels. The converse is true for the High Interest rate scenario.

Evolution of the Regulatory Asset Value (RAV)

Below we set out our business plan assumptions which inform the evolution of the RAV. In all cases our assumptions are consistent with RIIO principles, and fully adhere to Ofgem's strategy decisions.

The forecast RAV table below reflects the impact of the forecast total expenditure, regulatory capitalisation assumption, and regulatory asset lives amortisation assumption which are explained below.

Growth in the RAV through RIIO-ED1 is evident, SP Distribution increasing from £1.8bn to £1.9bn – an increase of 7% compared to the forecast increase over RIIO-ED2 of 25% to £2.4bn. SP Manweb increased by 19% from £1.8bn to £2.2bn compared to the forecast increase over RIIO-ED2 of 21% to £2.7bn.

RIIO-ED1 forecast RAV and forecast RIIO-ED2 RAV
£m (2020/21 Prices)

	RIIO-ED1		RIIO-ED2				
SP Distribution	Yr1*	Yr8	Yr1	Yr2	Yr3	Yr4	Yr5
Closing RAV	1,830	1,950	2,017	2,102	2,221	2,327	2,441
RAV Growth		7%					25%
SP Manweb							
Closing RAV	1,834	2,189	2,274	2,391	2,499	2,574	2,654
RAV Growth		19%					21%

*ED1 Yr1 represents Opening RAV

Total expenditure and capitalisation

Our total expenditure (Totex) comprises of the categories prescribed by Ofgem. These are mainly prime direct expenditure on load and non-load activities, non-operational capex, operating costs and indirect costs. Totex does not include business rates, Transmission connection charges or established pension deficit funding.

Within our business plan, on average 72% of SP Distribution's and 70% of SP Manweb's totex is allocated to the RAV and is spread over several years known as depreciation to reflect the long-term value of network assets. These capitalisation rates are a reduction from 80% in RIIO-ED1 and are consistent with Ofgem's RIIO-ED2 guidance to reflect our forecast annual statutory capitalisation in accordance with our expenditure projections.

In the longer term, a notional capitalisation rate which differs from the actual capitalisation policy can lead to an accounting mis-match. As a result, we prefer not to use the capitalisation rate as a financeability lever.

Asset lives and depreciation

Consistent with Ofgem guidance, our base assumption is to model regulatory depreciation using average economic asset lives of 45 years for new assets with straight line depreciation.

Assets existing at 31 March 2015 continue to be depreciated over 20 years, consistent with Ofgem's decision as set out in the March 2011

RIIO-1 Strategy. During the RIIO-1 period, asset lives increase linearly from 20 years in 2014/14 to 45 in 2022/23.

This policy continues to broadly reflect the underlying statutory calculated economical asset lives. We will continue to monitor and review this assumption through the price control as the composition of totex potentially changes.

Our plan does not seek to adjust asset lives as a source of financeability adjustments. This preserves the intended equitable inter-generational amortisation of the RAV.

Shareholder Remuneration

We aim to enhance shareholder remuneration by leading the sustainable creation of social, economic and environmental value for consumers, network users and wider stakeholders, including our shareholders and communities, in the areas we do business and for the country as a whole.

We aim to equitably compensate all groups that contribute to the success of our work. To this end, we consider our contribution to social return, employment and wealth for society when we're making investment decisions.

Our dividend policy is based on the principle all parties must share in success. This means consumers benefiting from lower bills and better services, while investors earn a reasonable return.

We are of the view that a dividend yield of 4.0% on the equity proportion of the RAV is more appropriate. This is lower than our assumption at DPCR5 and RIIO-ED1, which was 5%.

Comparative dividend yield

Company	Dividend yield
National Grid	5.4%
SSE	5.2%
Pennon	4.75% *
Severn Trent	4.1%
United Utilities	4.3%
Average	**4.7%**

*adjusted for special dividend

Observed dividend yields for UK networks companies are higher than our assumption. Adjusting for Pennon's special dividend, the average is 4.7%.

We believe our dividend assumption of 4.0% is sustainable, and compatible with the maintenance of our financial strength. We propose that it's also prudent when compared to companies with a similar business profile.

In determining SP Distribution and SP Manweb's dividend policies, we have taken into consideration Ofgem's proposal of 3.0% for a notional company, that is the basis of the modelling in this section. However, we consider this to be materially below the level investors expect from the sector.

Financial Policies

Pensions

Our business plans fully reflect Ofgem's pensions methodology as set out in various documents and consultations since 2009.

Our pension costs are calculated on the basis of the decisions set out in section 8 of the RIIO-2 Sector Specific Methodology Decision, Finance Annex (11 March 2021).

Established deficit

For both the ScottishPower Pension Scheme (SPPS) and the Manweb Group of the Electricity Supply Pension Scheme (Manweb Scheme) a roll-forward valuation to 31 March 2019 has been produced from the previous formal triennial valuation dated 31 March 2018 reflecting the requirements set out in the Decision on Ofgem's policy for funding Pension Scheme Established Deficits (7 April 2017).

We have used the method set out in the Pension Deficit Allocation Methodology (PDAM) to determine the split of liabilities and assets between pre (Established) and post (Incremental) cut-off date of 31 March 2010.

SP Distribution's funding allowance of the regulatory portion of the established deficit reflects a -0.7% discount rate spread evenly over 6 years from 1 April 2019.

SP Manweb's funding allowance of the regulatory portion of the established deficit reflects a -0.9% discount rate spread evenly over 8.8 years from 1 April 2019.

The pension principles are subject to ongoing review by Ofgem to make sure they continue to meet the interests of current and future consumers.

Established Deficit Annual allowance	SPPS	Manweb
Regulatory fraction	57.4%	80.0%
SP Distribution Annual allowance 6 years from 1st April 2019 at discount rate of -0.7% £m[20/21]	£29.7m	
SP Manweb Annual allowance 8.8 years from 1st April 2019 at discount rate of -0.9% £m[20/21]		£31.0m

Incremental deficit

The incremental deficit is included in totex and is benchmarked as part of total totex. Consistent with the calculation of the established deficit, this has been calculated based on a roll forward of the 31 March 2018 triennial valuation to 31 March 2019.

Incremental Deficit Annual Payment	SPPS	Manweb
Incremental Deficit payments for 20/21 £m[20/21]	£4.8m	£4.7m

Pension scheme administration costs and Pension Protection Fund (PPF) levy costs

These costs are reflected in our plan but are relatively small in value. Details will be provided in Annex 5D.1: Finance.

Ongoing future service costs – Defined benefit and contribution schemes

Our defined benefit pension schemes closed to new members in 2006. The contribution rates for future service accrual for 2020/21 (based on the 31 March 2019 triennial valuation) are shown below:

Defined benefit scheme
Excluding expenses (%)

	SPPS	Manweb
Pension and death benefits	56.0%	53.4%
Employee	5.0%	5.5%
Employer	51.0%	47.9%

Defined benefit schemes employer contribution rates
Excluding expenses (%)

	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
SPPS	51%	51%	55%	55%	55%	60%	60%	60%
Manweb	48%	48%	51%	51%	51%	56%	56%	56%

Defined contribution scheme employer contribution rates
Excluding expenses (%)

	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
Average	10%	10%	10%	10%	10%	10%	10%	10%

Tax transparency and beyond

The Ofgem policy decisions effecting taxation are in the main modelled automatically in the Price Control Financial Model. Our business plans fully reflect all policies that are well established and understood. Further detail on taxation payments is provided in Annex 5D.1: Finance.

We feel very strongly that it's important for us to not simply respect the letter of the UK's tax laws, but to be completely transparent in how we are taxed.

The two main tenets of our tax policy are:

• Respect legislation – we stay strictly within the boundaries of law

• No artificial structures – we take a conservative and prudent approach to planning.

Our ultimate parent company, Iberdrola S.A, has published a full report on tax transparency and the company's commitment to society.

CSR Europe, the leading European business network for Corporate Sustainability and Responsibility, released a Blueprint on Responsible and Transparent Tax behaviour and recently featured Iberdrola, endorsing its approach.

Delivering our RIIO-ED2 Business Plan

As we look forward to a future that brings substantial change for our networks, we are doing everything we can to ensure that our business, and our people, are ready to deliver our RIIO-ED2 business plan.

This means ensuring that we are preparing our workforce with the skills they will need to meet the demands of the future, and working closely with our supply chain partners to ensure they are ready and able to deliver what our customers and stakeholders need.

We have already demonstrated during RIIO-ED1 that we can set out and deliver a comprehensive business plan which meets the needs of our customers and stakeholders, and we will go further in RIIO-ED2 on this journey.

In this chapter

We describe how we are planning and preparing changes to our network, business and supply chain to ensure our plan will be delivered efficiently, and that we manage all uncertainties and risks as we do so.

We set out our continued commitment to using competition through flexibility and contract procurement to drive efficiencies, and to deliver in a way which offers best value for consumers.

We outline our plans to keep health and safety at the forefront of everything we do, through our culture, compliance activities, staff support, engagement and education.

6

A proven delivery capability

We will build on our RIIO-ED1 delivery experience

During RIIO-ED1 we have driven efficiency and innovation in our processes and across our programmes, working collaboratively with our supply chain partners to make sure we deliver what we said we would.

We focused on the long-term asset management of our network, ensuring that our network is ready to meet the growing demands of our customers.

We have built a strong track record of delivery, achieving industry leading performance in key areas including delivery of safety critical activities under our tree cutting programme and upgrade of Low voltage internal wiring (Rising & Lateral Mains) in multi occupancy premises.

During RIIO-ED1 we have used our strategic planning and delivery approach to achieve and accelerate delivery.

For example, our Overhead Line Modernisation programme was ahead of forecast at the end of 2019/20. This strategy was to maximise early benefits to customers by ensuring our network storm resilience was strengthened early in the period. We worked closely with our supply chain to ensure the step change in capacity required from the start of RIIO-ED1 was achievable and we continue to plan and coordinate in this way as we prepare for RIIO-ED2.

This strategic approach to planning and supply-chain management will be critical to responding to RIIO-ED2 priorities, volumes and uncertainties.

We have adapted in exceptional circumstances

Despite the impact of COVID-19, we've continued to deliver our RIIO-ED1 programmes, de-scoping less critical works and rapidly adapting our working practices to make sure that essential faults, connections and investment works were completed.

In addition, we implemented targeted risk management and ongoing assessment for strategic sites such as permanent and temporary hospitals and vaccine manufacture or storage locations.

We reacted quickly to the emergence of an issue with premature failure of a type of cable joint installed during 2002 to 2010 that can fault during sustained periods of high temperature. This resulted in us experiencing higher than usual 33kV underground cable faults during the summer months, which caused increased risk to customer supplies. We mobilised a proactive programme to remove this risk through strategic interventions.

An issue with low voltage link boxes also arose, with an accelerated fault rate of 1,045% from previous years. We successfully applied for £23m of additional allowance through the re-opener mechanism and worked with our supply chain to secure the materials and services required. We also implemented an accelerated inspection programme, and installed protection blankets and smart temperature sensors to manage public safety risk. We are now well on track to deliver this programme removing the emergent risk from our network.

> We've developed a highly skilled workforce capable of planning, designing and delivering complex programmes of work. We have a mature supply chain approach which is continually refreshed to encourage innovation and competition. This gives us a high level of confidence that we are entering RIIO-ED2 with strong foundations.

Improving delivery and responsiveness by being closer to our communities

During DPCR-5 we moved from delivering through a functional structure to a District structure.

SPD was divided into 6 Districts and SPM into 5 Districts, with centralised support functions. Each District is led by a District General Manager responsible for all distribution activities in their geographic area – resourced with staff from the local area.

Being part of the local community has reinforced our culture of being close to our customers and stakeholders and provides our staff with clear, long term ownership of their network activities and customer outcomes.

This structure has served us well throughout RIIO-ED1 and will evolve further to meet the RIIO-ED2 challenges and opportunities.

- **Merseyside –** Liverpool
- **Wirral –** Prenton
- **Mid-Chesire –** Middlewich
- **North Wales –** Llandudno junction
- **Dee Valley, Oswestry & Mid-Wales –** Wrexham
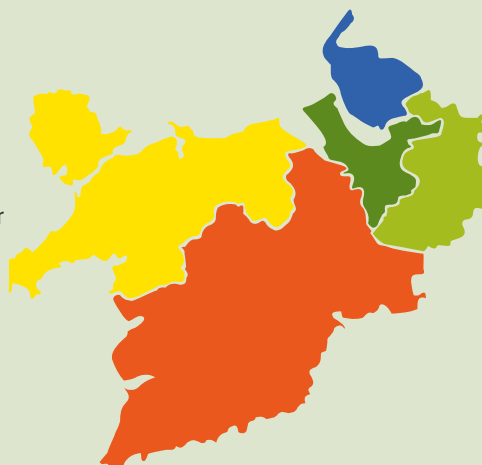
- **Central & Fife –** Bonnybridge & Glenrothes
- **Glasgow & Clyde North –** Glasgow
- **Lanarkshire –** Cambuslang
- **Edinburgh & Borders –** Telferton
- **Ayrshire & Clyde South –** Kilmarnock
- **Dumfries & Stranraer –** Dumfries/Stranraer
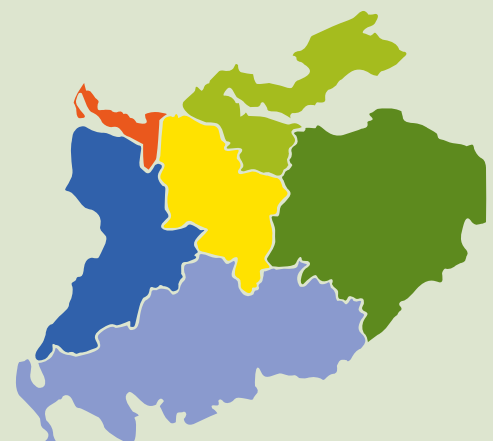
The delivery environment for RIIO-ED2

Our RIIO-ED2 and longer-term ambitions will shape our business and delivery

We will need to make significant changes to our business to meet the ambitious commitments set out in our business plan and to support the transition to Net Zero.

We must do this in a way that allows our customers and stakeholders to meet their aspirations, while continuing to maintain our core infrastructure to high standards of safety and performance.

We are confident that we'll meet this challenge. As set out throughout this business plan, we will put in place new digital-enabled approaches to planning and intervention, and to increase the productivity of our workforce. We are already mobilising the necessary recruitment and upskilling programmes for our future workforce. We are also working closely with our supply chain to plan how we deliver together in RIIO-ED2.

The energy transition will drive significant change

Our customers are increasingly turning to electric vehicles and heat pumps for transport and heating.

We're going to see a leap in renewable generation required to power these low carbon technologies, and our networks will experience more dynamic and complex power flows as customers become increasingly active participants in the energy system.

To prepare our networks for Net Zero, we will undertake proactive, targeted investment programmes, including the roll-out of LV network monitoring and upgrading cables. We will transform our approach to delivering customer connections to meet significantly increased volumes. We will invest heavily in operational IT and telecoms as we transition to DSO. And we will increase our environmental activities to deliver our Environmental Action Plan (EAP).

Examples of how we will respond to the changes that RIIO-ED2 will bring

Delivery challenge	Scale	Our efficient and effective delivery approach
Net Zero Preparing our LV Networks for Net Zero will require a significant increase in interventions.	Increasing uptake of Low Carbon Technology creates a step change in the volume of network capacity interventions, particularly on the LV network, with more than 50x LV looped service and 11x LV mains cable compared to ED1 levels.	We're working with our internal mains and cable laying contract partners to develop suitable partnerships to support this activity. These partners have a proven record for delivering this type of work and have the ability to scale up their models to meet the increases in this area. We are also proactively stimulating the market to drive maximum competition to full contract let in May 2022 to take us into RIIO-ED2 successfully.
Connection enquiries We will need to transform our customer connections processes.	Our analysis indicates that in RIIO-ED2 we could receive up to **five times** the number of customers contacting us for a connection; most significantly by first time customers looking to connect Low Carbon Technology.	Under our current operating model this would equate to an increase of around 100 FTE. This is, however, a process that is relatively straight forward and repetitive which is ideally suited for customer self-service and digitalisation. By introducing fixed price quotations, self-service and digitalisation the aim is to maintain existing resource levels through implementing a digitalised end to end connections journey with self-service options. Close governance around the digital transformation road map is in place with decision points agreed to ensure success.
PCBs Pole Mounted Transformers containing oil contaminated with PCB need to be removed by end of 2025.	We've modelled the numbers of transformers that need to be changed: SPD 4,056 and SPM 6,667 This equates to each District in SPD changing an average of 6.8 transformers per week and 11.1 in SPM.	Our plan to deliver this large, increased work programme is to offset it with the decrease we will experience in our ESQCR programme, as the backlog of defects have been cleared in RIIO-ED1. The majority of both programmes were/will be delivered by our Overhead Line framework contractors. We have reviewed the planned delivery across geographical locations and volumes against the ESQCR programme to gauge parity for our supply chain and workforce. This has confirmed that we have a deliverable plan.

Preparing for the scale of delivery and business change required

We recognise the need to carry out extensive preparatory work ahead of RIIO-ED2 in order to deliver on our business plan commitments. We plan to manage the impact through digitalisation, sustainable supply chain management, and recruitment and development of local skills and talent.

In preparation for RIIO-ED2, we have:

- Created a detailed model to assess the deliverability of our business plan including outputs, supply chain, enabling technology and organisational readiness.

- Challenged our plan to make sure it is deliverable

- Tested our plan against internal and external factors

- Identified interventions and, where we have unacceptable levels of risk, re-defined the scope of work

- Developed business readiness plans to make sure we are ready to start delivering on day one of RIIO-ED2

- Created a dedicated implementation team to make sure all parts of our business, corporate functions and supply chain are ready to deliver the challenges of RIIO-ED2

We will measure how well the readiness programme is working in advance of RIIO-ED2.

Engaging and evolving our supply chain

60% of our work in RIIO-ED1 has been delivered by a wide range of contractors and specialists. For RIIO-ED2 we have identified supply chain changes and taken proactive action.

All newly placed contracts provide for future requirements including supporting our customers and environmental commitments as well as adapting to forecast changes such as increased connections and load activities – we are making sure our supply chain partners are prepared for RIIO-ED2.

New contracts include risk management strategies to help us manage uncertainty without significant risk to efficiency, delivery and sustainability. For example, contract length options, alternative pricing strategies, and appropriate stocking strategies for equipment and materials.

We work closely with our supply chain – providing advanced indication of needs, allowing them to respond to changes in demand, and balancing our work with them. We are also pursuing alternative solutions such as joint recruitment and training ventures where we have identified a potential resource constraint in the marketplace.

We are challenging the workforce diversity of our supply chain to better align with our aspirations to represent the communities which we serve together.

Getting Our People Ready for RIIO-ED2

Our workforce will need to evolve and adapt to new ways of working as we embrace the challenges and opportunities of RIIO-ED2.

We will experience significant changes in demand on our central functions – particularly in planning, design, DSO, and digital. We will expand on our capabilities and evolve our processes to continue to meet demand.

Embedding change with our people and culture is vital. We use the Prosci® change management approach including the Prosci ADKAR® Model, which focuses on managing the people side of change to make sure individuals understand how they are impacted and what they need to do to get ready.

Recruitment, training, upskilling and retirements are key areas that will be managed to support the delivery of our commitments. **For more information on our workforce resilience plans, please refer to Chapter 4C.2.**

Enhancing delivery through digitalisation

We have a clear strategy to adapt our skills and capabilities, so we can fully embrace new technologies and deliver our plan efficiently. We have made good progress in digitalising our network, systems and processes in RIIO-ED1. However a more ambitious programme is required in RIIO-ED2.

We recognise the value of data as an asset and how this can be used to drive a coordinated and optimised approach to delivery. To support delivery of our digital systems we will require recruitment, training and upskilling. This process has already commenced, starting with our Centre of Excellence and IT support staff to make sure they can support the wider business users. In addition, a skills gap review of our digital capability has been completed to assess our ability to embrace our solutions for future success. This forms the basis of our "digital roadmap" for RIIO-ED2.

Our optimal approach to delivery
By embedding new digital approaches, innovation and process redesign we will limit the increase in our internal workforce required to deliver our ambitious RIIO-ED2 activities to 17.5% (427 FTE). Without efficiency initiatives, the required increase would be 29.5% (719 FTE); enabled by our digitalisation approach.

Our forecast FTE includes the increase required to deliver our common and bespoke outputs. For example we anticipate a need of circa 30 FTE to support our proposed suite of Customer Value Propositions. **A list of Common and Bespoke outputs can be referenced in Chapter 5C.**

For more information on how we will be able to deliver the ambitious plans set out in this document, see **Annex 6.1: Delivering our Plan**.

Managing delivery uncertainty and risks

Managing delivery uncertainty

Our planning is based on our robust DFES scenarios and a full evaluation of the strategies and initiatives we will deliver in RIIO-ED2. A large proportion of our RIIO-ED2 delivery plan is relatively predictable.

However, there remain areas of uncertainty which we will need to monitor, assess and be ready to respond to. These include:

The uncertain scale and pace of uptake of low carbon technologies such as EVs and heat pumps which could mean we need to reprioritise or reprofile our work programmes

Changes to policy, legislation or regulation that could impact our plans and obligations

Wider political and economic uncertainties, such as the impact of Brexit on our supply chain

Third party uncertainty, such as the way in which Highway Authorities use and introduce new permit and lane rental schemes

Our approach to managing uncertainty has three elements:

1. Dynamic planning
Our delivery plans will be continuously reviewed with formal reviews monthly, allowing adjustment as required. This is informed by continuous monitoring and analysis of programme progress, operational data and wider insight in areas such as policy and technology. Enhancing our analytical capabilities to drive this process is a key part of our digitalisation and workforce plans.

2. Flexible resourcing and contracting
Our resourcing plan is agile and can be flexed up or down to meet changing demand. The contracts we have placed with our supply chain are not commercially tied to volumes and the supply chain understand the uncertainties we face and, through close collaboration and joint planning can respond when necessary.

3. Organisational adaptiveness
Our mature business change approach will allow us to identify where we need to change our ways of working to meet any changes in priorities or demand. As we prepare for RIIO-ED2 we are reviewing how to evolve our organisation to be more adaptive. This includes embedding learnings from our response to COVID-19, building greater flexibility into our systems and creating a culture and working practices that support adaptiveness.

Risk management

Risks to delivery of our plans are managed using a robust Risk Management Framework which forms an integral part of our programme and wider business governance processes.

In assessing deliverability of our RIIO-ED2 plan, we have undertaken a full risk analysis. Details can be found in Annex 6.1 Delivering our Plan.

We have grouped and identified risks in four areas:

Assets
As leaders in asset management, we have robust processes to manage asset risk. In the unlikely event that a systemic issue (such as a type defect) arises, we are prepared to respond rapidly mitigating the impact through our delivery processes and programme replanning.

People
People risks include challenges in recruiting the number of staff with the required skills in a highly competitive environment. Addressing this risk is a core aspect of our Workforce Resilience Strategy.

Supply chain
Supply chain risk comes from the uncertainty in volumes, industry changes and enhanced environmental commitments. Working closely with our supply chain, initiatives have been developed to minimise impact of cost pressures and resource constraints. These include joint planning, standardisation, and use of new technology.

Digitalisation & Technology
There is a significant increase in our digitalisation programme. Implementing this programme will be key to meetings our RIIO-ED2 commitments, and we will use an agile approach to managing this programme and associated delivery risks effectively.

Driving Efficiency through continuous improvement

We've listened to what our customers and stakeholders have told us in RIIO-ED1 to inform our plans for RIIO-ED2. We are proactively building on RIIO-ED1 innovation to deliver smarter interventions, realising substantial savings for our customers.

We have a strong focus on continuous improvement of our processes and across our work programmes. This includes working collaboratively with our supply chain partners to identify opportunities to improve how we work together. We will continue to engage with our customers and stakeholders throughout RIIO-ED2 and will use their feedback to identify and drive opportunities for greater efficiency, better customer service and sustainability improvements. As part of a global business, we also take opportunities to work with other parts of our group to share best practice and challenge and strengthen our approaches.

Minimising disruption for our customers and stakeholders

There will always be an element of disruption caused by planned work on our electricity system. Our plans will be delivered in an optimised manner to reduce the disruption to our customers and stakeholders caused by roads and highways excavations or closures, and power outages.

Planning work in advance of need and optimising delivery (for example by whole streets for looped services) allows us to deliver the volumes efficiently. In addition, we will work closely with the Road Authorities to minimise disruption. Excavating on the same street on numerous occasions will not be tolerated and therefore early engagement with stakeholders to share plans is essential to the plan being deliverable. Working together in a collaborative way with the stakeholders is an essential part of our plan.

Much of our plan requires us to safely de-energise and disconnect live equipment on the network to replace, maintain, or install assets. When we do this, we may reduce the capability and reliability of the network or in certain instances (i.e. on the LV network) interrupt the supply to customers. We plan our work in great detail to minimise any effect on the network or risk of customer interruption.

The predicted uptake of Low Carbon Technology will have a major impact on the LV network, likely requiring a proportionate increase in the number of outages that will affect customers. Coordinated outage planning, on both the HV and the LV networks, will be used to minimise the impact on customers. The aim of the planning process will be ensuring that no customer will be off supply for planned works more than once per year and customers are kept fully informed of any proposed works.

Land & planning

A key part of ensuring our network is maintained effectively as we progress our ED2 plans is to make sure that the appropriate land rights are in place to enable the required access for our needs and the needs of our customers.

This includes reviewing our plans and growth areas against our in house and out sourced resources for Land and Planning activities to ensure we have the appropriate land rights agreements in place.

We anticipate a significant increase in volumes in RIIO-ED2 driven by two factors:

- The requirement for securing additional land rights associated with the need for additional cable and substations due to LCT connections

- An anticipated increase in diversionary type work based on RIIO-ED1 trends and modelling forecasts into RIIO-ED2.

We currently have contract frameworks in place for RIIO-ED2 to support this increase in work volumes, but we will also need to increase our workforce in this area to ensure we can deliver the expected volumes. That process is currently underway as an early action prior to the commencement of RIIO-ED2.

Our approach to deliver our RIIO-ED2 plan is to complete design work ahead of expected need and identify and secure sites based on our forecast modelling prior to start of ED2. This can be a lengthy process, but will allow us to complete the necessary legal processes in time to deliver our plans.

In parallel we will be working with our Local Authorities to ensure we avoid any bottlenecks in their processes and ensure a smooth delivery profile. We will also be commencing advance engagement with our local communities to ensure the impact is as minimal as possible

For more detail please see **Annex 6.1: Delivering our Plan**.

Bespoke Price Control Deliverable – Land Rights and Injurious Affection

Injurious affection (IA) relates to the perceived reduction in value of a property as a result of the presence of electrical apparatus located on the private land where we (a) hold a terminable personal right of occupation or (b) have no rights of occupation. Such claims relate to HV wood Pole Overhead Lines, cables and associated equipment, typically installed many decades ago.

In order to protect our assets from termination or an eventual injurious affection claim we need to secure permanent Land Rights, via a servitude or easement. These land rights are bound to the land and registered through the property title. As such it can be very difficult to obtain a servitude or easement with a property owner in the first place as they will be advised on the likelihood that any such land right may raise concern from any future purchaser or devalue the property at time of future sale.

We do not anticipate the volume of claims to reduce in the meantime as the land owners have the right to compensation. We have an obligation to clear the outstanding valid claims and future ones we receive. The costs of not doing so, in terms of removal of apparatus or diversion, would cost the consumer significantly more than settling the claims.

We are proposing a PCD for RIIO-ED1 claims, because if some of these claims cannot all be paid in the anticipated timeline or the forecast for the remaining period diverges from reality, then we should not be allowed to retain the remaining allowance. We believe that using a PCD would allow us to both settle these outstanding claims and protect our customers from unnecessary costs from non-delivery.

Our proposed Land Rights PCD has a defined outcome of settling the 4,481 IA claims by the end of the RIIO-ED2 period, with a ring fenced price control allowance of £42.7m.

For more information on our proposed bespoke PCD in this area, please refer to 5C.6: PCDs.

Competition: a continued commitment

We have a responsibility to develop and maintain an economic, efficient and coordinated distribution network. We use market-driven competition to do this, for the benefit of consumers.

Native Competition

Native competition already takes place under RIIO-ED1 arrangements. It refers to those competitions run by network companies within the price control framework under the Totex Incentive Mechanism.

We actively support competition in distribution, with 83% of our regulated distribution construction activities already delivered by the market.

Our flexible delivery strategy is based around a disaggregated contracts model. This has significantly increased tender competition and driven efficiencies across our distribution networks. We have worked with approximately 2,000 different suppliers during RIIO-ED1.

Accredited with our ISO 9001 Procurement Policy and Procedures status since 2013, we are confident that our existing procurement and monitoring practices reflect the Best Practice Principles that Ofgem has set out for the other RIIO-2 sectors.

As the energy landscape changes, there are more opportunities for DNOs to facilitate and develop opportunities in new markets. For example, in September 2020, we launched our largest flexibility tender to date, which looked to procure over 960MW of flexibility services over 2023-2028, at more than 1,000 locations across SPD and SPM.

In RIIO-ED2 we therefore intend to continue to be ambitious in using native competition through flexibility and our disaggregated contracts model. We believe this will drive efficiencies, ensuring our works carried out are procured as competitively as possible, and delivered in a way which offers best value for consumers.

New forms of competition for RIIO-ED2

For RIIO-ED2, Ofgem has stated its intention to introduce two new forms of competition:

Early competition – Ofgem describes this as a competition run prior to the project design process to reveal the best idea to meet a system need. In April 2021, the ESO presented an Early Competition Plan to Ofgem, including a detailed model for Early Competition in the Transmission sector.

Late competition – Ofgem describes this as competition for the delivery of a project to optimise financing, construction and operation costs.

Should Ofgem decide to introduce early or late competition into distribution networks we would expect them to undertake stakeholder-wide engagement to develop an early or late competition model that is suitable for distribution networks. This exercise must include comprehensive cost benefit analysis (CBA) and Impact Assessment (IA) work to assess whether any proposed early or late competition model delivers additional benefits to consumers, compared to the status quo RIIO framework.

A replication of either the early or late competition proposals for transmission networks is not directly transferable to distribution networks as the transmission and distribution networks are fundamentally different. For example, the size and value of projects are much smaller in distribution, with investments tending to be more integrated into the existing network.

Assessment of proposed RIIO-ED2 projects for Early and Late Competition

In line with Ofgem's Business Plan Guidance requirements, we have reviewed our RIIO-ED2 projects to assess those which are eligible for early competition (greater than £50m and contestable) and late competition (new, separable and greater than £100m) in both of our licence areas.

In making our assessments for late competition, we have also applied re-packaging and bundling rules to packages of work with a common needs case, for example condition driven programmes of similar assets have been aggregated. These activities share a common Engineering Justification Paper despite being delivered across diverse locations, times, and with site-specific planning requirements.

Following this detailed exercise, we have concluded that none of our projects, including our re-packaged and bundled projects, meet the early or late competition criteria.

We intend to continue to use our native competition practices in RIIO-ED2 to drive best value for consumers.

Competition in Connections

Within our license areas hundreds of connections are completed each year by third party providers, i.e. Independent Connection Providers (ICPs) and licensed Independent Distribution Network Operators (IDNOs). Going forward in RIIO-ED2, the opportunities for these entities to compete with DNOs is even greater than before, given the increases in connection activity we are predicting, primarily through the increased uptake of low carbon technologies.

We continue to support the Competition in Connections Code of Practice (CoP) so that the extent to which third party competitors rely on DNOs for the completion of their works is minimised. In RIIO-ED2 we want to ensure ICPs and IDNOs complete increasing aspects of their own quotations, designs and delivery. Empowering and allowing third parties increasing autonomy in this process will assist and speed up the process for wider customer benefit. We believe this will be delivered by our ambitious strategy which outlines the investment we intend to make into intuitive digitalised design tools plus increased transparency to data.

The development of competition in connections has led to the nature of certain construction activities, such as house building, to use multi-utility providers. These networks are often then adopted by IDNOs, which has led to licensed IDNOs increasing their number of connected customers nationwide. In RIIO-ED2 we will be keen to see how the standardisation of IDNOs develops in terms of their structure and financing. This will be a positive step to future competition within our license areas.

More information on Competition in Connections can be found in Annex 4A.28: Connections Strategy.

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Health and safety

Our track record

Our leading and lagging health and safety performance indicators measure how we're doing – and are published internally. Leading indicators include a wide-ranging internal operational audit programme, near-miss trend analysis and evaluation, and an occupational health screening programme.

Our headline performance indicator is Total Recordable Injury Rate (TRIR). This is calculated by combining the actual number of defined recordable incidents and total work hours of all employees within a defined employee group. We then multiply the total number of recordable incidents by 100,000 – then divide that number by the total number of person-hours worked in a given period.

At the start of ED1 our TRIR for employees was 0.26 and contractors was 0.79. Over the RIIO-ED1 period, staff TRIR has reduced by over 60% and contractor TRIR has reduced by over 30%.

We already have very low levels of employee and contractor accidents; however, we can always do better, and will work hard to reduce our TRIR over the RIIO-ED2 period.

We report our health and safety performance to our CEO, executive team and workforce. When accidents and incidents do happen, we thoroughly investigate them and analyse the causes.

Keeping Health and Safety at the forefront of everything we do in RIIO-ED2

This section outlines our plans across seven key areas of health safety:

1. Our health and safety culture
2. Compliance with health and safety legislation
3. Keeping our staff and contractors safe
4. Guarding physical and mental health
5. Educating the public
6. Engaging with the regulator and the industry
7. Engaging with our people

Our heath and safety culture

Health and safety is led from the top and driven by the business
Health and safety is always on our agenda and is woven into every decision we make. Every year we update our health and safety operating plan to reflect our goals and objectives. This plan is endorsed by the CEO and executive management team, then shared across the business. We review the plan regularly to make sure we deliver the improvements we've promised.

We also:

Hold weekly and monthly meetings solely to review health and safety performance.

Routinely publish health and safety communications on incidents and lessons learned by the business and the wider industry.

Follow internal processes to identify improvements in training or processes, then create new initiatives which deliver these gains.

Ultimately, we cannot compromise the safety of our staff. We have submitted a business plan which incorporates the funding we need to ensure the health and safety of our staff.

A consistent health and safety message
Health and safety matters. This is the simple, memorable message we use across all communications and employee work clothing. It's important for this to be visible across the organisation, underpinning our commitment to health and safety.

We deliver regular communications on performance, changes to processes and procedures, health and safety team briefs, and technical updates related to our assets.

We also hold health and safety stand-down sessions. Here, senior management brief staff on relevant and topical health and safety issues. We deliver a minimum of three stand-downs a year and we share them with our contract partners

Health and safety responsibility
Our line managers are responsible for day-to-day health and safety management. They get support and guidance from a professional team that includes qualified health and safety managers, as well as engineers providing compliance auditing. The health and safety team also includes occupational health professionals who manage statutory health surveillance activities and health and wellbeing initiatives.

Compliance with health and safety legislation

Our health and safety management system is audited by independent experts and certified to the new ISO 45001 standard. We consider certification as a minimum requirement – we go far beyond basic compliance in our efforts to reduce potential harm in our activities and will continue to do so.

During RIIO-ED2 we will implement a detailed audit and inspection programme to evaluate our compliance with legislative requirements and we will strive to achieve zero regulatory enforcement notices from the UK Health and Safety Executive.

All our major construction activities comply with the Construction Design and Management Regulations (CDM) 2015. Even when the project is not notifiable to the UK Health and Safety Executive (HSE) under CDM, we use the regulations as a benchmark for good practice.

Keeping our staff and contractors safe

We will continue to develop our health and safety culture. We will do this through visible leadership and making sure line managers take responsibility for health and safety. This underpins the four foundations of how we make sure staff and contractors are kept safe:

1. We assess risk
We continually assess risk when work is being planned and carried out, and always highlight any shortcomings after an audit or incident.

We have introduced Activity (or role-based) Risk Control assessment. These assessments identify hazards associated with various job roles, as well as control measures including training and education.

2. We make sure staff are trained
Only trained and authorised staff can work on our network. We review training needs every year, with the majority of training delivered by internal and external trainers at our two training centres. Trained staff are then formally issued with authorisation certificates by our authorisations team.

3. We operate under clear safety rules
We operate under our 4th Edition (Electrical & Mechanical) Safety Rules – these set safe procedures for staff working on our system. We also deliver comprehensive training programmes at our in-house training centres, guaranteeing the competence of our staff.

4. We carefully select contractors
When we select contractors, we carry out a thorough analysis of their health and safety management systems and performance. All equipment used in our activities is certified and maintained to the manufacturers' recommendations.

An operational compliance team audits the activity of our staff and contractors to a defined annual programme, testing the risk reduction controls implemented during our operations. Any lessons we learn from these audits we share with the wider business and, where appropriate, integrate into our training programmes.

Guarding physical and mental health

Mental and physical wellbeing are equally important and our commitments are detailed in the Workforce Resilience Chapter.

Educating the public

We invest heavily in educating the public about the potential risk of interacting with the electrical network.

To help us identify areas for intervention and education, we participate in the Electricity Networks Association Public Safety Committee. We also monitor and analyse data from our reporting of events as required by the Electricity Safety, Quality and Continuity Regulations.

We support safety education centres in our areas of operation and provide teachers with educational programmes – such as the educational website Powerwise – to raise awareness in schools.

Our staff take part in safety events in the communities where they live. We also work with the agricultural community to provide information on maintaining clearance between farming activities and the electricity network.

Engaging with regulator and the industry

As a member of the Energy Networks Association (ENA) we engage with other Distribution Network Operators on various working groups to develop, share and adopt industry best practices.

We also engage directly with the UK Health and Safety Executive to review our own activities and develop safer working methods in the industry, all with the aim to further manage potential risk.

Through our strong partnerships we will continue to develop our health and safety initiatives and share learnings with our peers to better the safety in our industry.

Engaging with our people

We recognise that the behaviours of our people will ensure an engrained safety culture. As such we will continue to support the role that Safety and Workplace Representatives carry out and consult with them to improve outcomes. Furthermore, we will encourage all of our people to put forward ideas to better our safety initiatives, and participate in our annual staff survey, THE LOOP. We always score highly in the Health & Safety section of our survey and make sure we develop an action plan based on feedback. Additionally, to further embed good safety behaviours, we promote the visiting of worksites to observe safe working practices and carrying out behavioural based safety interventions. Our supervisory staff also attend coaching safety training, and an electronic behavioural based awareness training course is available for all staff.

Assuring our RIIO-ED2 Business Plan

As we look forward to a future that brings substantial change for our networks, we are doing everything we can to make sure our plan is robust, well-researched and benchmarked.
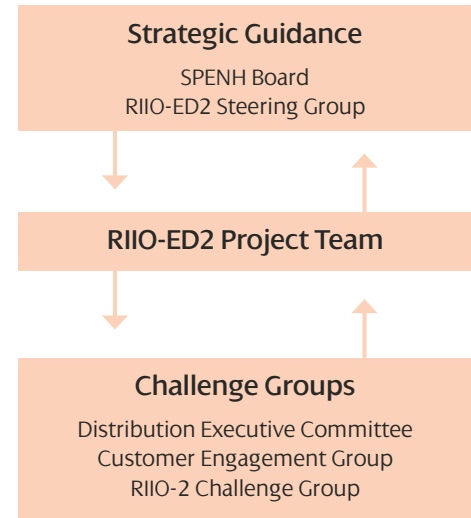
An open approach, built on trust, is necessary to maintain the reputation we have with our consumers, network users and wider stakeholders. We have taken steps to achieve this transparency and make sure our ambitious business plan is accurate, incorporates the recommendations of industry experts, and builds on our learnings from RIIO-ED1.

This all comes together under our assurance and governance framework. It sits at the heart of the process we used to develop our business plan – and has the full support of our board.

How we do it

Our assurance and governance framework gives us the certainty we need in our business plan, through:

- *a proven, established approach*
- *robust challenge from internal and external experts*
- *continued engagement from our board*
- *strong, accurate evidence to justify every decision*

Strategic Guidance
SPENH Board
RIIO-ED2 Steering Group

RIIO-ED2 Project Team

Challenge Groups
Distribution Executive Committee
Customer Engagement Group
RIIO-2 Challenge Group

7

Governance

Strategic guidance

Board of Directors of Scottish Power Energy Networks Holdings Limited (SPENH board)

The SPENH board has overall responsibility for the long-term strategy and direction of our RIIO-ED2 Business Plan. The board works to make sure the company continues to operate responsibly and ethically, while delivering success for consumers, stakeholders and network users.

The SPENH board comprises of six directors – two of which are independent.

Sr Armando Martínez	*Chairman*	Non-executive
Mr Frank Mitchell	*CEO*	Executive
Ms Alison McGregor	*Member*	Independent, Non-executive
Professor Dame Lesley Anne Glover	*Member*	Independent, Non-executive
Sr Sánchez-Galán	*Member*	Non-executive
Sra Monica Grau Domene	*Member*	Non-Executive

Our business plan was developed on the basis of robust models and analysis, and shaped by our extensive stakeholder engagement. The SPENH board, including our Sufficiently Independent Directors (SIDs), was fully engaged throughout this development process.

The board receives regular updates on RIIO-ED2 through formal board meetings and these will continue until our final submission. We have also held two dedicated workshops with our board, with a further two planned before our final submission. These workshops are a forum for SPENH board members to challenge our RIIO-ED2 project workstream leads on all areas of our business plan development.

This strong level of engagement with the board members provides them with reassurance that our business plan is underpinned by a comprehensive assurance framework, and provides an opportunity for them to test our submission for accuracy, efficiency and ambition. We will be publishing a Board Assurance Statement along with our final business plan submission which will set out how our board, including our SIDs, is satisfied that our plan and associated costs are accurate, efficient and ambitious.

RIIO-ED2 Steering Group

Providing strategic direction and governance to the project team's work, the RIIO-ED2 Steering Group helps shape our business plan outputs and build a plan that is consistent with our purpose.

As part of our commitment to robust and consistent governance, the group runs to a set agenda, with action logs and minutes of meetings captured. Chaired by Frank Mitchell, the CEO of SP Energy Networks, this project steering group was created for RIIO-ED2. All the key areas of focus from our business plan submission are represented in the group.

Challenging the business plan

Robust challenge keeps our business plan firmly rooted in our corporate values. It also makes sure we deliver what stakeholders tell us matters most to them.

Challenge comes from three key groups: the Distribution Executive Committee (DEC), the Customer Engagement Group (CEG) and Ofgem's RIIO-2 Challenge Group (CG).

Distribution Executive Committee

The Distribution Executive Committee meets monthly and comprises a sub-section of the SP Energy Networks Executive team. The committee was set up specifically for RIIO-ED2. Its remit is to review, challenge and provide endorsement of key project decisions. The committee also deals with escalated decisions and creates a channel of communication between the project team, the SPENH board and the RIIO-ED2 Steering Group.

An example of this working is when the committee challenged the project team on the deliverability of the business plan. The committee recognised the criticality of ensuring that we have carefully considered all key aspects needed to deliver our plan efficiently and against the constraints that can affect it. The outcome of this challenge resulted in two experienced senior managers from our distribution business being appointed to our RIIO-ED2 project team full time, strengthening our focus on this critical aspect of our planning.

Further internal challenge

Challenge is also provided by internal working groups in different subject areas. For example, our ED2 Future System Strategy workstream hold a monthly steering group with our director of Network Planning and Regulation and senior leaders and experts involved in running and supporting our distribution business. This steering group supports and challenges the development of our investment plans and makes sure all decisions are fully considered and robust. This strong level of challenge is applied to all areas of our submission.

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Customer Engagement Group

Our independent Customer Engagement Group (CEG) is playing a fundamental role in the development of our business plan, bringing new perspectives and providing robust, constructive challenge to our decision-making.

The group's primary purpose is to provide expert challenge on whether our business plan addresses the needs and preferences of current and future customers and stakeholders. As such, the CEG has developed a close working relationship with our RIIO-ED2 project team so it can scrutinise our proposals at every stage of development.

The CEG meets with us on a monthly basis in order to regularly challenge our emerging thinking across all aspects of the RIIO-ED2 business plan. Since its establishment in January 2020, the CEG has met with us 63 times with over 150 formal meeting hours, heard from over 40 members of staff, including six directors and our CEO, and submitted over 600 actions, challenges and items of feedback. They have also heard from a range of external organisations who have helped the group gain a better understanding of particularly complex or technical issues, allowing for more thorough scrutiny of our proposals.

The following table shows examples of where the CEG has challenged us and what we've changed as a result.

Feedback	Action
The CEG recommended that SPEN included community energy groups in its engagement on customer service.	*Local Energy Scotland, Community Energy Wales and Community Energy England were added to our stakeholder list for Customer Service workshops.*
Further engagement with business and industry, potentially through Local Enterprise Partnerships (LEPs) or trade bodies on Sustainability was recommended.	*Additional Local Enterprise Partnerships and trade bodies were invited to our Sustainability workshops.*
Increase the diversity of stakeholders attending stakeholder workshops.	*We broadened the scope of some of our RIIO-ED2 engagement workshops, covering more topics with a greater diversity of stakeholders.*
The Just Transition is a critically important issue for the energy industry as a whole and SPEN should ensure it contributes effectively.	*We facilitated a workshop between the CEG and a member of the Just Transition Commission and continued to engage the CEG on embedding a Just Transition throughout our business plan.*

RIIO-2 Challenge Group

Independent scrutiny has been provided by the RIIO-2 Challenge Group (CG), which is responsible for reviewing the RIIO-2 plans of all Electricity, Gas, Transmission and Distribution companies.

Our RIIO-ED2 team has met with the Challenge Group on three separate occasions in advance of our draft submission. Firstly, we met with them as an introductory session. Secondly, we met with them to discuss our RIIO-ED1 track record and to discuss our RIIO-ED1 achievements. And thirdly we provided them with an overview of our RIIO-ED2 plan ambition, in which we outlined our priorities and sought feedback on the commitments which we propose to deliver during RIIO-ED2.

These sessions were attended by representatives from our senior management and executive team with all agreed follow up actions progressed. This strong level of engagement with the group will continue and we are committed to ensuring that their feedback on our draft submission is addressed for our final submission.

Mrs Alison McGregor
Independent Non-Executive Member, SPENH Board

"*It is essential to me that our business plan submission is underpinned by a robust assurance framework. I have been very impressed with the approach taken to assurance by the RIIO-ED2 project team, providing me with confidence that we have achieved a robust and deliverable plan which has been subject to challenge and scrutiny by several independent specialists across all areas of the submission.*"

Assurance

Assurance framework

Our business plan must be accurate, well justified and compliant with all regulatory requirements – this is vital to earn the trust of our consumers, network users and wider stakeholders. Our robust assurance framework means every part of our plan is thoroughly reviewed.

Ofgem's Data Assurance Guidance

Our existing assurance framework ensures we adhere to Ofgem's Data Assurance Guidance (DAG) with the aim of reducing the risk of any inaccurate reporting.

DAG sets out the following steps for every submission made to Ofgem:

- a risk assessment following a defined risk assessment methodology, and the preparation of a method statement explaining how the submission is prepared

- a second person check, and a senior manager review for every submission before we send it to Ofgem

- the determination and completion of any additional assurance activities for those submissions assessed as high or critical risk, prior to submission, from a pre-defined list

- an annual report on the results of the risk assessment and assurance activities, providing confidence in the accuracy of content.

Integrated Management System

Our Integrated Management System (IMS) consists of four international standards:

- Asset Management ISO55001

- Quality Management ISO9001

- Environmental Management ISO14001

- Health and Safety Management OHSAS ISO45001

The IMS allows us to organise and manage our operations to achieve our business goals and objectives – while at the same time making sure we support the environment, our people, our customers and network integrity. Our IMS drives best practice approaches which strengthen our business plan and how it will be delivered.

We have our compliance with the standards audited every three years – our latest re-accreditation was in 2018. In 2019, external auditors commented that we were seen to be in the 'upper tier' compared to other organisations from a system control and structure perspective. In 2021, and subject to audit, we will be recertified against the above management systems and will add Business Continuity ISO22301 to the portfolio.

An alternative way to assess risk

To make our assurance process even more rigorous, we have developed a holistic approach to assessing risk, adding a strategic view of business impact by using our Enterprise Risk Reporting methodology. Combining this with Ofgem's existing DAG methodology lets us consider risks from a range of perspectives.

The Enterprise Risk Reporting methodology considers risks to SPEN associated with the investment options and how these impact on a variety of factors, including health and safety, operational performance, environment and stakeholder reputation. The DAG methodology considers the risks of providing inaccurate or incomplete data submissions – and how these impact on customers, competition, financial and comparative efficiency.

The risk assessment was carried out by our internal Assurance team, which is independent of the RIIO-ED2 project. This independence gave us confidence that the assurance would be targeted at the correct areas.

To carry out the risk assessments, our business plan was broken down into several key components – we refer to them as building blocks. Each building block was risk assessed using both methodologies.

The assurance activities were deployed based on risk score – the higher the score the more extensive the assurance. Where there was a disparity between the DAG and Enterprise Risk Reporting methodology score, the level of assurance applied was based on the highest score, to provide the greatest coverage across the plan.

Professor Dame Lesley Anne Glover
Independent Non-Executive Member, SPENH Board

"Our ongoing engagement with the RIIO-ED2 project team provides me with confidence that our innovative business plan has been built to deliver on the needs of our Customers and Stakeholders, and allows us to take a leading role in delivering a sustainable Net Zero carbon future."

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Three lines assurance model

First line

Risk assessments and method statements are followed by a second person and then a senior manager review – this is the minimum standard set out in the Ofgem DAG.

We applied this approach to all sections of the business plan, regardless of risk score. We used it across data tables, narrative and annexes – with method statements in place for all.

Second line

Some parts of the plan attained a risk score of High or Critical, so we applied additional assurance activities to these areas:

- challenge from internal or external experts
- challenge from our internal Assurance team
- challenge and sign-off by our directorate, CEO and Sufficiently Independent Directors via our board – applied to all content.

Internal and external experts

We used internal experts across various teams in our organisation. These experts are independent of the RIIO-ED2 project team. They provide challenge across a number of areas, including development of our consumer vulnerability strategy and connections strategy, and making sure our proposals can be delivered from a systems, resource and supply chain perspective.

All our investment proposals are challenged through our System Review Group (SRG). The SRG, which is independent from the RIIO-ED2 project team, is a long-established internal forum of engineering experts. The group held weekly extraordinary meetings to review the content of investment proposals – approving the concept and design from a technical and engineering perspective.

Industry experts from outside our business also challenged our plan – their independence, and expertise in their field, gives us confidence that we have fully considered all options, and that our submission is well substantiated, cohesive and viable. For example, we used independent expert S&C Electric who have extensive engineering capability across distribution networks internationally, and an in-depth knowledge of the RIIO framework, to challenge our engineering justification papers, giving us confidence they are robust.

A full list of all industry experts can be found in Annex 7.1: Assurance and their final reports will be available in our final submission.

The RIIO-ED2 project team reviews and tracks all recommendations and challenges raised by our internal and external experts, making sure they're addressed.

Our Sufficiently Independent Directors (SIDs) have met with one of our external experts at the dedicated workshops and this opportunity will be made available again prior to final submission. They will also be given access to all final reports.

Internal Assurance Team

We also work closely with our internal Assurance team – they have provided guidance on our approach from the outset.

In addition to the independent risk assessment of our assurance framework building blocks, they sample check our data tables, based on risk, to verify the accuracy of the content and delivery against internal timetables. There is robust follow up on all recommendations. They also review the second person and senior manager challenges on the data tables and method statement content, making sure these meet the required standard.

Review and sign-off

We applied various additional layers of sign-off, aligned to those in the DAG to ensure a rigorous review process for our submission. We engaged the relevant directors, CEO and the full board – including our SIDs – to review, challenge, and sign-off all sections of the plan using formal certificates. This gives us full, clear accountability.

Third line

Fully independent from SP Energy Networks, Scottish Power has a well-established Internal Audit team. The annual audit plan focuses on the main risks of the business – including regulatory risk – and is approved by the Scottish Power Energy Networks Holdings Limited Audit and Compliance Committee. Internal audit experts carry out audits related to our RIIO-ED2 business plan assurance.

Assurance of the plan as a whole

We will engage extensively on our full draft business plan with a number of key stakeholder organisations, to challenge whether we are meeting the needs of those they represent.

This activity will include the Scottish and Welsh Governments, and the Liverpool Metropolitan Region. They will review our proposals and challenge us on how the proposals will allow them to realise their policy commitments.

Another vital factor is providing the information our regulator has requested in a clear, concise and accessible format. We have worked closely with an external expert, PA Consulting, to provide an independent quality review and challenge of our submission, including against the requirements and expectations set out by Ofgem. This company was selected due to their extensive experience in energy regulation and their engineering and operational expertise.

As we said at the beginning of this chapter, trust is vital to any business plan. That's why we've worked to make sure our assurance framework satisfies the expectations of our consumers, network users and wider stakeholders. It's also why our assurance work does not stop until we submit the final business plan. Trust and transparency underpins everything.

Summary

The preceding chapters of this document have set out our ambitious plans to meet the needs and priorities of our customers and stakeholders in RIIO-ED2 and beyond, as we work with our communities to enable a just transition to our Net Zero future.

This chapter describes how we'll continue to keep our customers and stakeholders at the heart of our decisions and actions as we deliver our plan.

In this chapter

We describe how we will build upon our strong track record of engagement to lead the way for our customers and stakeholders on the journey to Net Zero. We will continue to engage on the topics that matter most to them and directly embed their feedback within our investment decisions and activities.

Our CEO provides a final perspective on our business plan and the critical role our customers and stakeholders have played in its development.

We invite you to continue shaping our draft business plan by having your say on our proposals.

8

Continuing to engage with customers and stakeholders

Engagement with our customers and stakeholders is central to everything we do and has been a key priority when building our RIIO-ED2 Business Plan.

Throughout RIIO-ED2, we will build upon our strong track record of engagement to lead the way for our customers and stakeholders on the journey to Net Zero. We will continue to engage on the topics that matter most to them and directly embed their feedback within our decisions to deliver positive outcomes based on extensive engagement.

Achieving Net Zero will require big changes in how we operate as a business and how we live our everyday lives. It's crucial we adopt the best approaches to engage with our stakeholders in a meaningful way to facilitate such change.

Our engagement strategy is based on feedback direct from our customers, stakeholders and our learnings from RIIO-ED1.

In this section you will read about how we will continue to engage with customers and stakeholders throughout RIIO-ED2, outlining;

Our enhanced Stakeholder Engagement Strategy for RIIO-ED2. How our strategy has been co-created on the basis of extensive research, engagement and leveraging global best practice.

The performance targets, standards and external accreditations that will drive our strong performance in stakeholder engagement, delivering meaningful outcomes and be used to hold ourselves to account.

How we will adopt a robust principles-based approach to engagement throughout RIIO-ED2, and how we will maintain a high level of scrutiny and input from an independent external group.

How we will apply our innovative Social Return on Investment (SROI) methodology – providing a level of insight into the social value of our activities.

The tools and processes we are putting in place to deliver our Stakeholder Engagement Strategy, influence our decision-making and deliver on our ambitious commitments.

We have **5 detailed commitments** in this area that we have tested with customers and stakeholders. All of these commitments are detailed in this section, and are summarised below:

TP6 We will ensure a stronger voice for our customers, stakeholders and communities throughout ED2 by continually listening and acting upon the views and needs through an increased range of methods and tools that are internationally recognised as best practice to drive impactful and inclusive engagement.

You can find more detail in:

Annex 8.1: Future Stakeholder Engagement Strategy

Evolving our engagement strategy to meet the needs of our stakeholders

We first implemented a dedicated Stakeholder Engagement Strategy in 2013 and since then we have made significant changes through continual improvements and a desire to continuously evolve.

The improvements we made to our Stakeholder Engagement Strategy through learnings have allowed us to build a robust approach to engagement for RIIO-ED2 and beyond. Throughout RIIO-ED1, stakeholder engagement has been fully embedded across the whole business, however as we move to shorter price control periods, our engagement with stakeholders must adapt to ensure we remain at the forefront of industry changes.

With a pivotal role to play in how the UK achieves our Net Zero ambitions and recognising industry uncertainties, we must drive a continual, ongoing engagement strategy, focused on key topics which are important to our stakeholders.

We know from our stakeholder engagement throughout RIIO-ED1 how important it is to engage early and work in collaboration with relevant stakeholders in the planning process, for example with local authorities and project delivery boards, acting as a facilitator on their journey to Net Zero.

Our track record

Our strong performance in stakeholder engagement throughout RIIO-ED1 has allowed us to take full account of our customer and stakeholder views in developing our future plans, in the most fair and efficient way. Over this period, we have significantly transformed the way we conduct stakeholder engagement – shifting from tactical, project specific engagement to broad, tailored and relevant

engagement to deliver real business change based on stakeholder need. Building on this strong track record we identified best practice methods for stakeholder engagement through lessons learned in RIIO-ED1 to take forward into RIIO-ED2 to continue to facilitate meaningful engagement to deliver positive outcomes for our customers and stakeholders.

Engagement best practice	Year (embedded)	Impact	Embedded in RIIO-ED2
Stakeholder Engagement external assurance and accreditation	<2015	Quantitative assessment to identify strengths and gaps of engagement practices	✓
Stakeholder Prioritisation Research	<2015	Integrated stakeholder needs and preferences into business planning	✓
Strategic Stakeholder Panels	2015	Strengthening stakeholder voice, informing strategic decision-making. Senior level buy-in	✓
Stakeholder Management Database	2016	Over 6,500 stakeholders registered. Targeted engagement / stakeholder segmentation	✓
Strategic stakeholder mapping approach	2016	Stakeholder segmentation by knowledge and levels of interest/influence. Embedding inclusivity in engagement, extending our reach	✓
Stakeholder Online Community	2017	Platform embedded to facilitate two-way dialogue – cost and time efficiencies for stakeholders and the business	✓
Social Return on Investment (SROI) tool	2018	Solution established to prioritise projects and initiatives with a positive social value	✓
Independent external group	2020	Independent external scrutiny and challenge on our plans, delivering better outcomes for customers	✓
Hybrid engagement model	2020	Broad and inclusive engagement. Value for money	✓
Hard to reach drivers	2020	Key hard to reach drivers identified, embedding engagement inclusivity as standard practice	✓

These engagement best practices are central tools and processes which underpin all of our engagement across all topics. See Annex 8.1: Future Stakeholder Engagement Strategy for full detail of how these best practice learnings have delivered positive outcomes for our customers and stakeholders throughout RIIO-ED1 which will be used to inform our approach to stakeholder engagement in RIIO-ED2.

Through exploring engagement best practice, it's vital to recognise and play on our strengths and overcome any areas of challenge. For example, in RIIO-ED1 we implemented a separate online community site for domestic customer feedback. This engagement method did

not yield high engagement and was less inclusive for customers who may be digitally excluded. In RIIO-ED2 we will specifically target our Online Community platform to engage with stakeholder organisations only as a more suitable format for engaging with our stakeholder community. Throughout RIIO-ED2, we will continue to explore effective ways engage with customers to generate quality feedback such as traditional research methods with well-established databases, best suited to their needs. The expected impacts will drive greater stakeholder and customer participation through targeting each segment via the most appropriate engagement method.

Co-creating our Stakeholder Engagement Strategy for RIIO-ED2

We undertook extensive research and engagement to co-create our stakeholder engagement strategy and commitments. We engaged over **100** stakeholders across more than **50** organisations to create a robust framework for stakeholder engagement in RIIO-ED2 to facilitate the change required to deliver a business in direct alignment with their needs and preferences.

We adopted a variety of best practice engagement methods such as cross-sector insight sharing to leverage areas of best practice. This allowed us to make sure our approach is well justified and representative of the views of a broad and inclusive range of stakeholders.

Stakeholder	Stakeholders said	We did
Customer Engagement Group (CEG)	Our CEG challenged us to broaden our engagement reach and seek best practice through proactive engagement with industry peers to uncover areas of best practice in stakeholder engagement.	Held bilateral sessions with every UK GDN, Anglian Water and participated in TO best practice working groups to leverage key insight and adopt this within our approach for RIIO-ED2.
Industry Players – gas, water and Transmission Operators (TOs)	Engagement with key stakeholders told us to uncover the challenges and opportunities of regionality e.g. forming collaborative partnerships with other utility companies to host joint engagement events, helping stakeholders keep informed with future industry changes. Leveraged insight from Northern Gas Networks on their approach to engaging with hard to reach groups – an area highlighted as best practice by the RIIO-2 Challenge Group.	Created key hard to reach drivers around utilising partnership links to deliver mutually beneficial goals throughout RIIO-ED2. Used this leading practice to formalise our approach to targeting and engaging hard to reach stakeholders into an overarching framework.
Strategic Stakeholder Panels – England, Wales and Scotland	Panel members praised our approach to stakeholder engagement however it was acknowledged more could be done to engage with hard to reach groups. Geographical remoteness and 'digital poverty' were cited as obstacles to engagement – stakeholders suggested a number of methods we should employ in RIIO-ED2 such as taking an active role in collaborative partnerships to reach different stakeholder groups. Strategic panel members supported tracking Social Return on Investment performance and invited us in setting measurable targets.	Robust engagement strategy co-created with our stakeholders. Created seven new hard to reach drivers including regionality and partnerships to promote inclusive and diverse engagement. Committed to delivering positive social value throughout RIIO-ED2.
Distribution Network Operators (DNOs)	Through best practice working groups stakeholders discussed adopting a hybrid model to engagement due to the benefits of online engagement for time-poor stakeholders or third-party representatives who face engagement barriers relating to funding/resource.	Embedded a hybrid engagement model for RIIO-ED2 using a combination of digital technology to complement traditional engagement methods in a post-covid environment.
AccountAbility – owners of the AA1000 stakeholder engagement standard	AccountAbility (AA) conduct a robust healthcheck assessment of our stakeholder strategy, governance and activities through director and senior level interviews. AA recommended we adopt an educational role to engage with stakeholders who lack awareness in Net Zero and identify factors that may impede stakeholder's ability to engage.	Created key 'lack of awareness' driver within our hard to reach framework – particularly around highlighting our role in the decarbonisation agenda and encouraging consumers to move toward electrification and away from a reliance on fossil fuels.
Consumer representative organisations	Bilaterals with the Council of Ethnic Minority Voluntary Sector Organisations (CEMVO), a strategic partner of the Scottish Government Equality Unit suggested we develop commitments around our hard to reach drivers.	Created an inclusive approach to stakeholder mapping and targeting throughout RIIO-ED2 with key commitments to drive engagement inclusivity.
RIIO-ED2 Engagement Workshop	Retesting priorities with stakeholders on an annual basis was warmly received, with stakeholders recognising responsive and reactive measures to take into account stakeholder opinions and needs due to the changing energy landscape.	Committed to testing our business priorities with customers and stakeholders on an enduring basis throughout RIIO-ED2, aligning to stakeholder need.

See Annex 8.1: Future Stakeholder Engagement Strategy for a full summary of stakeholder engagement and feedback to develop our Stakeholder Engagement Strategy for RIIO-ED2.

Continuous consultation on our business priorities

Over the past year, we engaged more than 15,000 customers and stakeholders to get their views on what our priorities should be as a business. These efforts allowed us to gather the most comprehensive understanding of the priorities of our customers and stakeholders for today and the future.

Throughout RIIO-ED2, we will test our priorities with customers and stakeholders on an enduring basis to make sure our strategic direction is informed by their needs and preferences. We will do this through ongoing stakeholder engagement such as; qualitative and quantitative surveys, activity on our stakeholder online community and our programme of engagement, ensuring our business priorities remain aligned to our stakeholders needs.

Our strategic approach to stakeholder engagement in RIIO-ED2

Our Stakeholder Engagement Strategy comes from a combination of industry best-practice, stakeholder and customer feedback and years of experience delivering high-quality engagement throughout RIIO-ED1.

Our strategy is driven by our CEO and Executive Team and supported by the Central Stakeholder Engagement Team. It sits across our entire organisation, regardless of the engagement topic. It also shows our commitment to the AccountAbility AA1000 principles of materiality, inclusivity, responsiveness and impact.

Our strategy is comprised of four components:

Mission statement – this sets our ambition for the engagement.

Principles of engagement – explains how we engage and what we want to be known for.

Approach to engagement – the process we follow to start, deliver and close our engagement activities.

Supporting tools and processes – these underpin our approach and ultimately deliver engagement activities aligned with our principles.

Our mission statement

Our mission statement defines our engagement. This ambition builds on our current strengths, while focusing on what will make future engagement valuable and effective for our customers.

"Our engagement places our stakeholders and customers at the centre of everything we do. With a tailored and locally focused approach, we will prioritise their needs and preferences in a consistent manner across our business. We will deliver safe, reliable services, sustainable value, and a better future, quicker."

Our principles of engagement

We have defined five principles that will drive all of our engagement efforts and underpin delivery of our mission statement. These principles are derived from how we currently operate, and how we want to operate in the future, allowing us to be responsive to stakeholder needs and look to better our approach.

Inclusive
We engage all customers and stakeholders impacted through our work, with a specific focus to ensure those who may be hard to reach are given a voice.

Authentic
Our engagement works to understand the significant issues affecting our customers and stakeholders, before acting on them in a meaningful way.

Tailored
The approach we take to engagement ensures that each event is planned and delivered in the most appropriate way for the specific purpose and stakeholders in question.

Value-for-money
An inherent focus, we prioritise high value/low cost activities, aiming to maximise the overall customer benefit.

Innovative
We aim to better our approach each year, looking for new and innovative methods to improve how we engage our customers and deliver against their wants and needs.
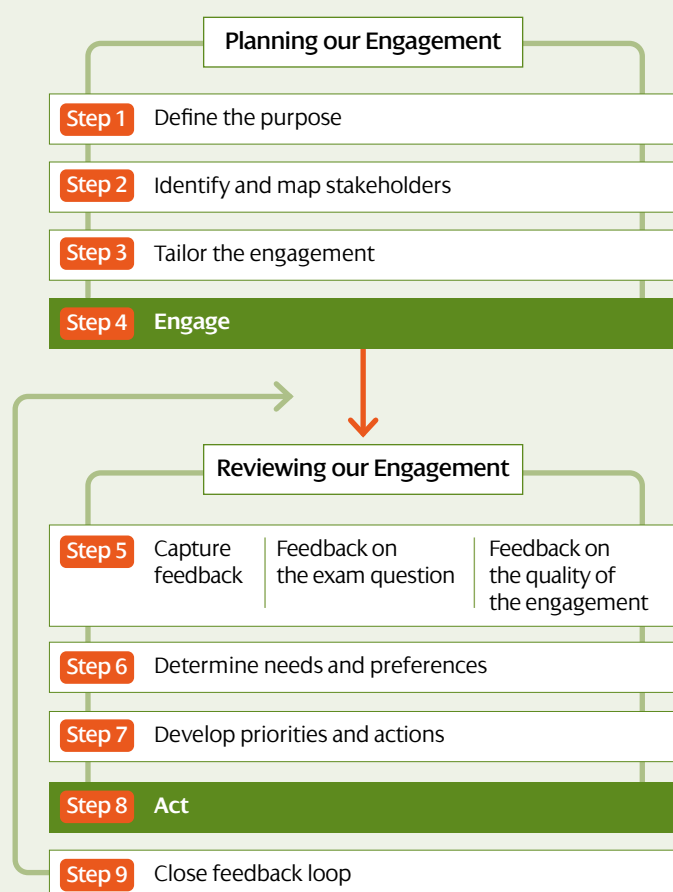
See Annex 8.1: Future Stakeholder Engagement Strategy for detail on our principles in action.

Welcome to our plan

Co-creating our plan with customers and stakeholders

Our strategy and ambition for RIIO-ED2

Our RIIO-ED2 Business Plan in detail

Our expenditure, incentives and finance

Delivering our RIIO-ED2 Business Plan

Assuring our RIIO-ED2 Business Plan

Summary

Our robust engagement approach

With our mission statement setting out our ambition and our principles stating the underlying characteristics of our activities, our nine-step approach to engagement provides a roadmap of how we plan, review and close engagement activities.

All teams across the business follow the same key steps when planning, reviewing and closing their engagements. This drives consistency and helps us understand the needs and preferences of our stakeholders and customers. As a result, the business decisions we make on the back of their feedback add real value, both socially and financially.

9 steps of our engagement approach

Planning our Engagement

Step 1 Define the purpose

Step 2 Identify and map stakeholders

Step 3 Tailor the engagement

Step 4 **Engage**

Reviewing our Engagement

Step 5 Capture feedback | Feedback on the exam question | Feedback on the quality of the engagement

Step 6 Determine needs and preferences

Step 7 Develop priorities and actions

Step 8 **Act**

Step 9 Close feedback loop

Step 1: Define the purpose

Engagement planning starts with a clear purpose. It's important all of our engagement aligns with the areas our customers and stakeholders have told us to focus on.

Based on best practice methods learned in RIIO-ED1, we have developed stronger links between engagement activities and business objectives. For example, we have re-aligned our strategic topics of engagement with the overarching objectives established through extensive consultation on our business priorities. This will help us clearly define the purpose of our engagements before planning:

Develop a network that's ready for Net Zero
- Future System Strategy (inc. LCTs, Resilience etc)
- Whole Systems and Commercial (inc. DSO and Connections)
- Connections
- Innovation

Be the trusted partner of our customers, communitites and stakeholders
- Customer Service
- Vulnerability
- Community Energy

Ready our business for a digital and sustainable future
- Digitalisation
- Workforce Resilience
- Sustainability

Each topic is owned by a member of our Executive Team who has accountability for the engagement plan. A Senior Manager is responsible for the delivery of each engagement plan. In turn, our central stakeholder engagement team co-ordinates the plans. This makes sure engagement runs through all levels of the organisation.

Our approach provides a central view of engagement. It also ensures we minimise duplication, reduce instances of stakeholder fatigue through targeted engagement, and identify gaps early in the planning process.

Step 2: Identify and map stakeholders

With a clear purpose defined, we then identify key stakeholders who are best placed to provide informed feedback that can help us achieve our objective.

To do this, we conduct a robust stakeholder mapping exercise which ensures breadth, inclusivity and highlights any gaps in our engagement. We use Tractivity, an industry-leading system which has over 6,500 stakeholders registered. Tractivity helps us identify stakeholders' specialist expertise and knowledge levels. We then segment that list further including by stakeholder categories, levels of knowledge and interest on a topic and geography. As our network and stakeholder needs are evolving at pace, we will continuously update our definition of stakeholders as part our our overall approach to ensure it remains relevant and in line with industry changes. For further detail on our mapping approach, see Annex 8.1: Future Stakeholder Engagement Strategy.

Identifying and mapping hard-to-reach stakeholders

Throughout RIIO-ED2 we will continue to make it a priority to extend our engagement reach and make sure those who are typically harder to reach are given a voice. Building on our engagement learnings from RIIO-ED1 and adopting best practice from industry peers, we have formalised our approach to targeting and engaging hard to reach stakeholders into an overarching framework. Extensive engagement with our Strategic Stakeholder Panels and hard-to-reach representative organisations guided and shaped the creation of our key hard to reach drivers and associated commitment to embed inclusivity in our engagement approach. These commitments and associated actions allow us to play our role in delivering a just transition, ensuring no-one is left behind on the journey to Net Zero.

Our framework for engaging hard-to-reach stakeholders

Key drivers	What we'll do	How we'll do it
Partnerships	Utilise our strong links with stakeholders who represent the voice of hard to reach groups and use their channels to extend our reach.	Continue to collaborate with stakeholder organisations to deliver mutually beneficial goals.
Inclusivity	Embed inclusivity and diversity in our engagement and engage with consumer representative organisations to review our stakeholder mapping and close any gaps.	Conduct a gap analysis of our engagement to ensure inclusivity and combat engagement isolation. Utilise our strong network of partnerships to ensure our engagement is as inclusive and diverse as possible before carrying out our engagement.
Language & Health	Work with stakeholder partners to identify customers whose health and language acts as a barrier to engagement.	Provide translation services for our communications where appropriate, including print and digital. In line with our vulnerability strategy, continue to collaborate with partner organisations through our Nexus of Partnerships to identify and engage with customers whose health and language acts as a barrier to engagement.
Barriers to technology	Offer additional engagement methods to those who may be digitally excluded.	Conduct face-to-face research and engagement where required to ensure no customers or stakeholders face digital exclusion.
Lack of awareness	Commit to educating and informing stakeholders of our role as a network operator.	Use our formal channels and engagement opportunities to educate our customers and stakeholders on our business, making sure everyone has a voice, regardless of knowledge.
Regionality	As the only DNO to operate across Scotland, England and Wales, we commit to promoting breadth in our engagement to embed regional views within our plans.	Recognise the changing demands on the local grids at both a national and local level as we align to climate change ambitions. Conduct robust reviews of stakeholder feedback, ensuring comparable and representative views across varying regions.
Future Customers	We will make sure our engagement is inclusive of the views of future consumers to inform our approach throughout RIIO-ED2 and representative of this stakeholder group.	Engage with future consumers and work with partner organisations who represent their voices to make sure their views are embedded within our decision making throughout RIIO-ED2.

For further detail of our hard to reach framework in action, see Annex 8.1: Future Stakeholder Engagement Strategy.

Step 3: Tailor the engagement

We recognise the importance of engaging stakeholders via the right means in accordance with their levels of knowledge, interest and influence on a particular topic. This step of our strategy helps us decide on the stakeholder channels we can employ to best target our stakeholders.

Step 4: Engage

By following a robust planning process, this results in an inclusive, tailored and value-for-money engagement event, ready to be delivered. To deliver the intended results, we have taken guidance from the Stakeholder Engagement Standard AA1000 on the formal identification and management of risks. During this step, senior managers proactively identify engagement risks demonstrating buy-in to our strategy.

Building on our engagement learnings, we will build a hybrid approach to engagement in RIIO-ED2 through a combination of in person and digital engagement to appropriately tailor our engagement methods with a broad range of stakeholder groups from national policy makers to local level engagement.

Step 5: Capture feedback

Our engagement process and business decision making is driven by the feedback we receive from our stakeholders. We will continue to listen to our Tractivity users to make sure the system is easy to use, so we don't run the risk of losing valuable stakeholder feedback.

Tractivity has been successfully embedded with our senior managers, resulting in key feedback being tracked and outcomes being delivered as a direct result of our engagement with stakeholders.

Step 6: Determine needs and preferences

This step is central to the effectiveness of the overall strategy. We analyse feedback against every engagement to determine any needs not met, services that could be improved, or potential for us to improve targeting of resources to focus on delivering what our stakeholders have told us – demonstrating authentic, ongoing engagement.

Step 7: Develop and prioritise actions

We aim to provide value for money through all our services – a principle that lies at the heart of everything we do. Demonstrating this value rests on our ability to measure potential outputs and prioritise accordingly. While this is something we have always done, we have recently focused on adding structure to our approach. This better justifies our actions to our stakeholders.

Step 8: Act

Each step, from capturing feedback and determining needs and preferences to developing and prioritising actions, leads to a list of actions for the business to complete that will improve the services we offer.

Each of these actions is recorded and monitored, providing visibility of the full process – from engagement conducted through to action taken as a result of feedback.

Step 9: Close feedback loop

To 'close the loop', we review the impact of feedback – whether it's developing our understanding of stakeholders or improving our tailoring – and build it into our approach.

We will continue the feedback loop we've developed through years of engagement during RIIO-ED1, supported by our tools, processes and recent updates to our approach. For more detail on our nine step approach, see Annex 8.1: Future Stakeholder Engagement Strategy.

Reporting

We have a comprehensive monthly reporting process to share details of engagement activity with our CEO and Executive Team, resulting in successful buy-in. We share summarised reports externally to report back to stakeholders on the actions we have taken and how their feedback has directly informed decisions at all levels of our organisation.

Our engagement strategy in action – Case Study, Demand Calculator – providing customers faster access to network information

The engagement
In RIIO-ED1, we partnered with CALA Homes, monitoring sites to illustrate the impact of modern living on energy consumption and shared learnings with other national builders and Homes for Scotland. Through continuous engagement and building on our trusted partnership, we responded to stakeholder feedback and developed a SPEN calculator tool for them to independently and accurately quantify load requirements of low carbon technologies.

What stakeholders told us
Stakeholders highlighted the challenge of forecasting capacity required for low carbon technologies and how this is a significant pain point causing cost and timing overruns for much-needed housing developments.

The outcome
- Stakeholders are now able to access a single source of truth regardless of geography to conduct their own capacity requirements, assisting in estimating quotes.

- This will allow them to incorporate higher levels of low carbon technologies and greener solutions to achieve their own sustainable targets and push towards Net Zero.

- We are working with the Energy Networks Association to embed this tool across all DNOs to benefit the whole of the UK.

This example of our stakeholder engagement strategy in action illustrates the benefits realised through proactive engagement, listening to our stakeholders and delivering new service solutions to meet their needs. This type of engagement is crucial to deliver the necessary service solutions to facilitate our stakeholders' and customers' journey to Net Zero throughout RIIO-ED2.

Supporting tools and processes

To support efficient delivery of our Stakeholder Engagement Strategy, we will take forward a variety of supporting tools and processes in RIIO-ED2 as a direct result of learnings and best practice from RIIO-ED1. Some examples of our industry-leading tools and processes include:

- Tractivity stakeholder database, event planner and survey tool. Used for engagement planning, gap analysis, stakeholder segmentation and mapping. With over 6,500 stakeholders on our database we carry out an annual data cleanse to maintain relevant and quality stakeholder data and ensure better targeting of our communications. Our enhanced approach to stakeholder mapping through Tractivity was identified as a key strength in the 2021 AccountAbility audit.

- Our Stakeholder Online Community. Used to gather qualitative feedback from a database of over 250 stakeholders.

- Strategic topic engagement plans; driven by directors, senior managers and central engagement teams aligning to our strategic priority areas.

- Social Return On Investment (SROI) measurement tool for use before, during and after a project/initiative has been undertaken – aligning to our 'value for money' principle.

Delivering value to our customers and communities

Everything we do is funded by our customers, that's why it's crucial we find credible ways of delivering maximum value for the least cost – a key pillar within our Stakeholder Engagement Strategy.

We were the first DNO to consistently apply a Social Return on Investment (SROI) methodology – providing a level of insight into the value of our activities like never before. In the last year, we have progressed the development of our tool to improve the robustness of our assessments and taken a leading role to standardise our methodology across all UK DNOs to establish a common and standardised approach to measuring social value.

The outcome of this joint approach is for network operators to be able to compare the benefits of projects in a fair and standardised format with the ultimate aim to maximise the value of benefits of our projects and initatives to customers all over the UK.

Our SROI tool is an intuitive system that allows users to compare multiple projects in a step-by-step approach. By using this tool, we can justify the decisions we make based on stakeholder feedback.

The tool allows us to:

- Quantify and forecast the costs and benefits of projects over time.

- Demonstrate the net benefit created for customers by every pound we spend on a service.

- Prioritise projects with a greater SROI.

- Justify projects with a positive social return on investment.

We are committed to using our robust SROI methodology to transparently deliver value to our customers, stakeholders and communities throughout RIIO-ED2. For further detail on our innovative SROI tool, please see Annex 8.1: Future Stakeholder Engagement Strategy.

SROI in action

In the example below, you can see how we have used the tool to calculate the social return on investment for our iDentify project which uses Artificial Intelligence (AI) recognition technology to crowd source asset data and customer devices to inform our records, whilst reducing aborted calls and also offers training and guidance to field staff on our assets.

Reporting figures after 1 year	
Total cost	£222,143
Total gross present value	£1,690,734
Net present value	£1,468,591
SROI (for every £1 spent)	£6.61

See Annex 8.1: Future Stakeholder Engagement Strategy for a full breakdown of our SROI calculation and how this has been used to inform our decision making.

Ongoing role for an independent external group

Our independent Customer Engagement Group (CEG) has provided expert challenge and input on our RIIO-ED2 Business Plan to make sure it effectively addresses the needs and preferences of our customers and stakeholders.

We intend to maintain a similar level of external scrutiny and input throughout the RIIO-ED2 price control period. We believe an informed, external group, operationally independent from SPEN can:

- influence business decision making and activities

- make sure commitments are delivered

- assess our performance in key incentives

- provide an advisory role using their wealth of industry knowledge to support the successful delivery of our plan.

We intend to conduct a review of the most suitable format and membership for this independent group before the RIIO-ED2 period begins. This will make sure the group is as diverse as possible to ensure its representative of customers and stakeholders from varying regions across Scotland, England and Wales. We will assess the format and frequency of meetings, adjusting accordingly as the group formalises its new remit.

Our ambitious set of performance commitments for stakeholder engagement

Our robust engagement throughout the business planning process has supported the development and co-creation of our stakeholder engagement performance commitments for RIIO-ED2. This engagement has informed our level of ambition to create stretching commitments, exceeding Ofgem's minimum requirements. For further detail on stakeholder acceptability of our performance commitments, see Annex 8.1: Future Stakeholder Engagement Strategy.

What our customers and stakeholders have told us is important

Provide value for money services

Stakeholders supported us in tracking Social Return on Investment performance and invited us in setting measurable targets around the social value of our initiatives.

Harness digital technologies for proactive engagement

Stakeholders felt an online community platform would provide an opportunity for topic-specific threads available for detailed comment and discussion, as well as creating a virtual space where people from different areas of interest, perspectives and skillsets could interact. Stakeholders also deemed it as particularly important in light of Covid-19, with more people working remotely and open to more virtual forms of communication.

Be accountable to the global benchmark for high quality engagement

Stakeholders suggested we should consider benchmarking our stakeholder engagement performance beyond regulator league tables against a recognised framework.

Remain responsive to changing priorities

Stakeholders stated it is very important to be reactive to stakeholder needs and flexible in how you engage. A large majority of stakeholders highlighted that with the enormous amount of change entering the energy industry, responsive and reactive measures that take into account stakeholder perspectives, opinions and needs, are increasingly important.

Embed a proactive programme of engagement

Stakeholders highlighted that executive-level engagement is particularly useful as it is often seen as a key to influencing wider decision making within the industry. Stakeholders pointed out that it is important to be reactive to stakeholder needs, flexible in the engagement methods and we must ensure engagement is as meaningful as possible, to combat stakeholder fatigue.

Percentage of customers who support the commitments*.	Household	Commercial
	83.80%	76.90%

Percentage of customers who are willing to pay, at least the RIIO-ED2 cost, for commitments in this topic area.

81.20%

*Research is ongoing. We expect values to vary between our draft and final plan as we continue to refine and test our commitments based on customer and stakeholder feedback.

In RIIO-ED2 we are committing to:

We will report annually on our latest engagement performance through transparent stakeholder reporting, including social return on investment generated by our stakeholder initiatives. We will commit to achieving a positive social value for every £1 spent on a project or initiative over a 5-year period.

Ofgem requirement: Valued outcomes.

Launch a fit-for-purpose online tool, which gives our stakeholders easy access to a collaboration and engagement platform where they can engage with relevant content and influence our decision making. We will ensure better targeting of stakeholder communications, increasing active participation rates by 20%.

Ofgem requirement: Ambitious and transparent.

Through our robust stakeholder engagement strategy, we will deliver industry leading stakeholder engagement through the principles of inclusivity, materiality, responsiveness and impact. To validate this and help inform our continuous improvement we will seek achievement of the AA1000SE industry standard for stakeholder engagement. We will aim to reach the highest categorisation phase possible on the AccountAbility maturity ladder following a robust evidence check and senior manager interviews – demonstrating our commitment to industry leading engagement practices.

Ofgem requirement: Best practice and benchmarking
Strategic and proportionate.

We will re-test our priorities with customers and stakeholders on an annual basis and present results to our independent external group every year along with our action plans. Our plans will be inclusive ensuring our engagement cover all stakeholder and customer groups.

Ofgem requirement: Responsive to needs
Inclusive.

By embedding an annual programme of engagement across each of our strategic topic areas, we'll give stakeholders the chance to influence our decisions and assess the delivery of our plans. At an executive level, we will hold director-led strategic stakeholder engagement events demonstrating senior-level buy in and engagement with our stakeholders.

Ofgem requirement: Embedded culture
Senior-level buy-in.

Measurement of our performance commitments

We will use well established methods such as regular reporting through engagement events and stakeholder reports to provide evidence of the delivery of our performance commitments and associated impact. We will regularly report on our progress against our performance commitments to our independent external group – holding us accountable to successful delivery and associated outcomes.

Looking to our Net Zero future

A final message from our CEO

Thank you for taking the time to read this plan.

I hope you'll join us in looking forward to an exciting future, where we can re-think our approach to the energy system and develop a shared vision of how to make the low carbon transition a reality. This is a significant challenge, but equally, it's an unparalleled opportunity for our society. We're uniquely placed to enable this, and it's a privilege for us to do so.

We can apply the power of our people, culture and investment to support a just transition for our communities. We will recruit for 1,100 jobs in our local communities, and even more in our supply chain. Importantly, through all of this, we can support a green recovery in areas that are at risk of being left behind in the energy transition.

The next step in our RIIO-ED2 journey is to test our draft plan.

We'll conduct our final phase of engagement in the coming months, where we'll seek further feedback on our proposals, commitments and strategies. It's important to me that we challenge ourselves to deliver the best service and outcomes that we can for all of our customers.

I would like to thank all of our customers and stakeholders that have given their time, energy and enthusiasm into our engagement so far. I look forward to hearing your views on our proposals and encourage you to have your say.

Frank Mitchell
CEO, SP Energy Networks

#ChallengeOurPlan

You can tell us what you think about our business plan commitments, and the overall approach we've outlined in this document, by visiting: **www.spenergynetworks.co.uk/challengeourplan**

We'll use everything you tell us to strengthen our plan before final submission, and we look forward to hearing from you soon.

Our RIIO-ED2 draft plan in summary

Develop a network that's ready for Net Zero

By developing the network of the future, we will facilitate Net Zero ambitions, enabling the connection of over 670,000 electric vehicles and over 370,000 heat pumps.

We will secure the health, reliability and safety of our network by continuing to lead the way in asset management and optimising our network asset risk.

We are dedicated to serving the different needs of our connections customers by focusing on simplification, self-service, and efficiency.

Be the trusted partner for customers, communities and stakeholders

We will deliver excellent satisfaction and enhanced services for all customers to help them navigate an increasingly complex energy landscape.

By supporting vulnerable customers and communities to make sure no one is left behind, we will ensure a Just Transition so that everyone can share in the benefits of Net Zero.

We will work with our communities to facilitate the energy system transition and enable community energy projects, and will make £30m of Net Zero funding available.

Ready our business for a digital and sustainable future

Our efforts to support an environmentally sustainable network will reduce our carbon footprint by 38%, and electrify our fleet of vehicles.

Promoting an inclusive, diverse and community based workforce, we will recruit over 1,100 staff during RIIO-ED2, including more than 400 new roles.

Embedding new digital approaches, innovation and process redesign will save customers over £60m.