Our plan to lead the North West to Net Zero: 2023-2028

electricity north west

Bringing energy to your door

Our engagement to develop this plan has been the most transparent of any network operator. Transparency is the key to material engagement and constructive challenge, so customers and stakeholders in the North West have benefited significantly from our position as one of only two networks to publish a full early draft of this document in April 21, and as the only network to publish full annexes and supplementary detail in July.

We've written this final version of our plan for our regulator, Ofgem, as well as for our customers and stakeholders. In doing so, we've consciously focused on making this document as easy to read as possible – in language, layout and font size – keeping it concise while still presenting the evidence needed for our plans.

We recommend that you open the navigation tab on the left-hand side to show the contents list and use the hyperlinks throughout the document to move between annexes.

In this section

Section 1

Welcome

Welcome to our plan to lead the North West to Net Zero. This is a plan that shows leadership, our focus as a driving force in delivering Net Zero, and our commitment to keep bills low for customers while providing an excellent tailored service meeting the needs of the North West based on robust and high quality engagement.

1.1 CEO welcome

Welcome to our business plan for 2023-2028. This is the third published version of our plan following our early draft in April and our full draft in July. Each building on the last, taking in hugely important feedback from a range of customers and stakeholders.

This plan sets out our unwavering commitment to Net Zero, innovation and efficiency. I want to be very clear. Everything that we deliver in this plan is inextricably linked to the challenge of reaching Net Zero.

We'll reduce our part of bills by an average of up to £12.49 a year compared to the current price control, keeping costs as low as possible for customers. We'll also deliver net social benefits of more than £1.1bn to customers in the North West, helping level up the North.

Our vision is to 'Lead the North West to Net Zero'. And we don't say that lightly. The climate emergency is the greatest challenge of our age and networks are uniquely positioned to enable the transition as we move away from fossil fuels to low carbon electricity to power our homes, businesses, transport and heating.

This is a long-term vision, not just for this business plan, but through the next two business plans too, ED3 and ED4 right up to 2038 which is when we are targeting Net Zero for our business, aligning with the regional aims of our local political leaders.

The transformation of the energy system requires transformation of our business. We simply will not get where we need to be as a country or as a network operator if we do not change. We know that this change will take leadership. Leadership of the business of course, but also leadership in terms of stepping forward as energy experts with a critical role to play, helping customers and stakeholders on the journey.

We are not a passenger nor merely an enabler. We are a driving force. We will lead by example and lead others both in the industry and in our region.

We have already developed two world-leading technologies with the support of our regulator, Ofgem. Smart Street and CLASS are gamechangers. Innovations developed here in the North West that go a long way to solving the difficulty of providing more capacity at a reduced cost, and reduced carbon impact, compared to traditional methods. Coupled with our 'flexibility first' commitment, we'll deliver more for less.

This plan will ensure that the network is ready for the 630,000 electric vehicles expected on the region's roads by 2028 as well as significant electrification of heat. It will also put the network in a strong position to move smoothly into ED3 as the Net Zero transition continues to accelerate.

Our customers, our stakeholders and our people are behind this ambitious and efficient plan and I'm excited about our leading role to deliver it.

Peter Emery
Chief Executive Officer
Electricity North West

1.2 Chair comments

This is an ambitious plan built from extensive high quality and robust engagement and process that, as a board, we have seen first-hand.

It has to be ambitious to meet the challenges ahead, as well as meeting the needs and challenges from the thousands of customers and stakeholders engaged over the past two years to develop it.

The fundamental challenge that the country faces is delivering Net Zero at a price people can afford. That means the whole energy system, transport system and other interlinked systems and processes as well as domestic and business policy needs to be joined up, with each playing its part as a cohesive whole. These systems do not operate in isolation.

I fully understand the pressures that government and regulators face when such huge commitments are required across so many sectors in a coordinated way. It's impossible to ignore the macro factors at play as network companies submit plans to the regulator. Not only have we seen the COVID-19 pandemic plunge the country into recession, but we're also now seeing the energy market being directly squeezed by gas prices.

The desire to protect customers from excessive bills is a fundamental requirement. As is making sure that the right amount of investment is taking place at the right time in the right areas to mitigate future risks.

Efficiency and innovation are key, as well as continued engagement. Electricity North West was the most efficient distribution network operator in ED1, is agile thanks to its size and structure and has a strong record of innovation. It's also been the most transparent in the business planning process publishing more detail than any other network to allow full scrutiny from a range of customers and stakeholders who it's critical we take on this journey with us.

There is very evident political support in the North West for Net Zero, with Cumbria, Lancashire and Greater Manchester all committing to Net Zero before the UK's 2050 target and supporting our own plan to reach Net Zero by 2038.

This plan delivers for them while recognising that the networks are part of a wider system. That's why some difficult decisions have been made with a laser focus on efficiency across all areas that make up customer bills, meaning that customers will pay less than they currently do for the network in ED2, while we still deliver the incredibly ambitious plan that the region and country wants and need on the path to Net Zero.

Despite the huge disruption to both home and work life caused by COVID-19, engagement to develop this plan never stopped. I am thankful to the thousands of customers and stakeholders who took part, for their continued and enthusiastic involvement. For more information, see our board assurance statement.

Alastair Buchanan
Chair
Electricity North West

In this section

Section 2

Who we are and what we do

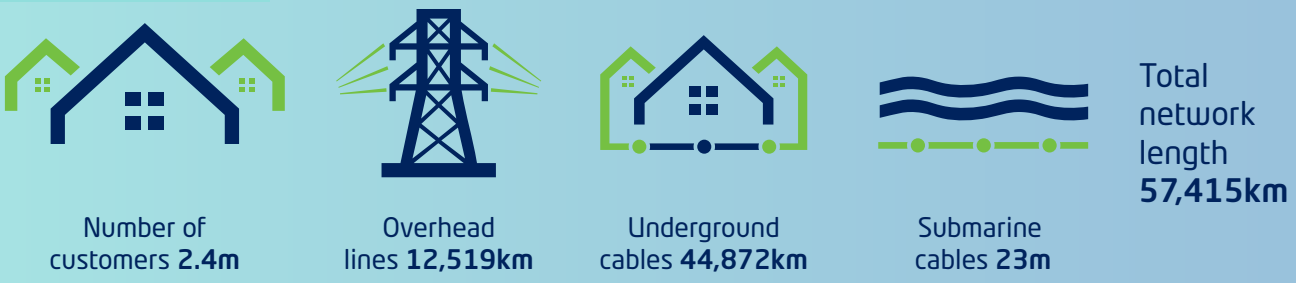
Electricity North West is the region's distribution network operator (DNO). We are fundamental to the Net Zero transition, managing power flows from a range of sources in a wider whole system as we move away from fossil fuels towards electricity for heating and transport. We do all this while keeping costs as low as we can for customers.

We're the North West's electricity network, making us a regional monopoly – there's little competition as duplicate networks wouldn't offer value to customers. As such we're regulated by Ofgem, the Office of Gas and Electricity Markets. To make sure we're offering value we submit a business plan like this to Ofgem every five years.

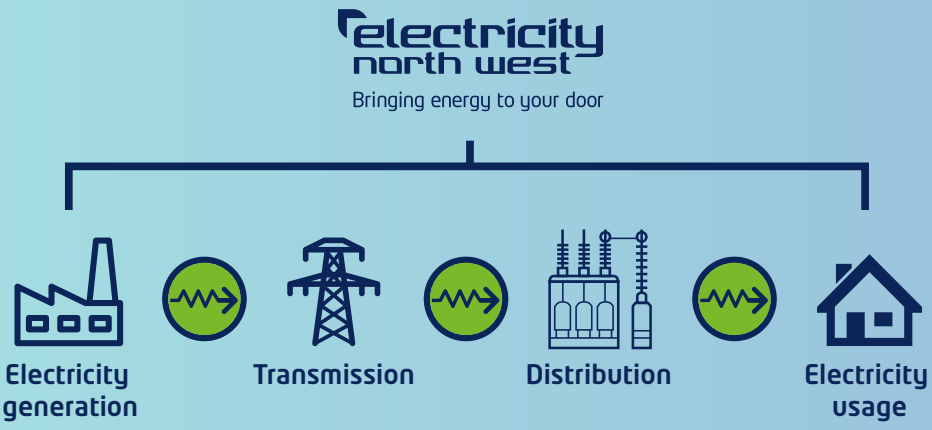
The previous period lasted eight years, from 2015-2023 and is known as RIIO-ED1 (Revenue = Innovation + Incentives + Outputs, Electricity Distribution 1). This business plan covers from 2023-2028 known as RIIO-ED2.

The energy industry and landscape is changing fast. Electricity is key to reaching government Net Zero targets by 2050 and many local authorities, including in the North West, have set even more stretching targets. This plan sets out how we are getting the network ready for the rise in electric car chargers, electric heat pumps, solar panels and other technology that will reduce the country's reliance on fossil fuels and help us reach Net Zero.

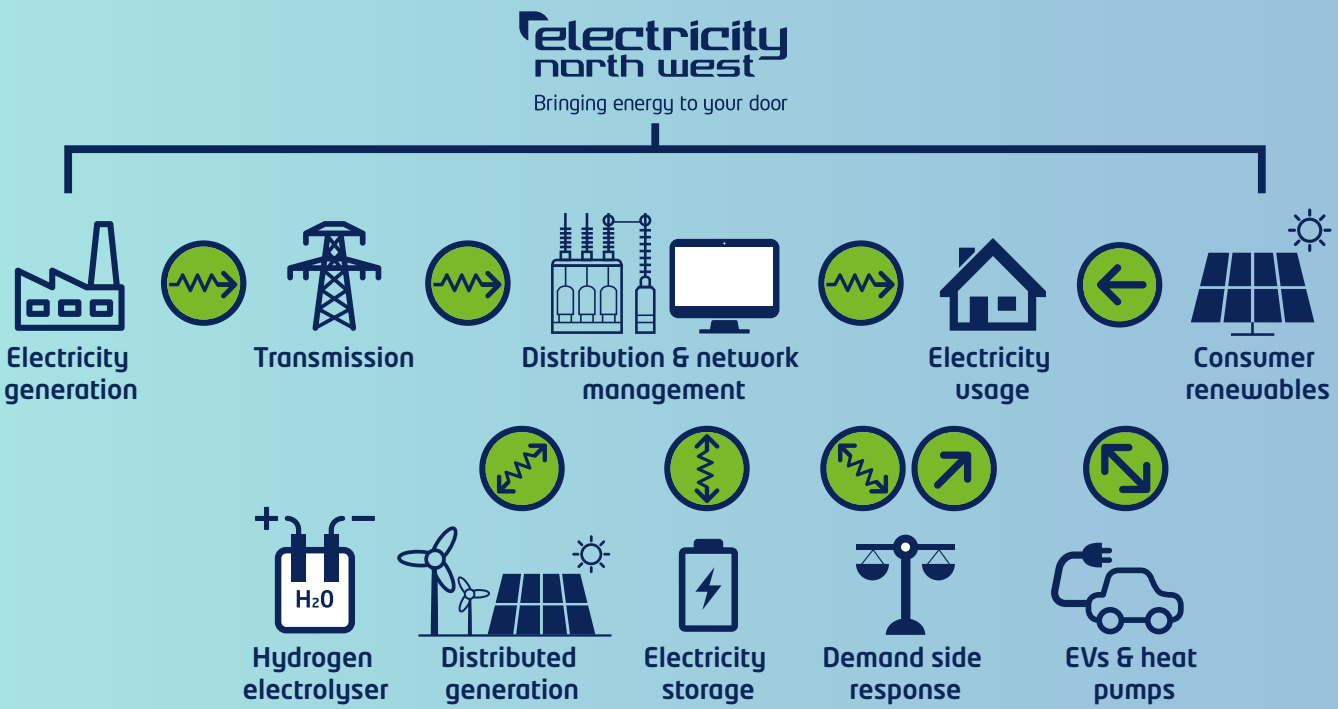
Figure 1: Our network



The network has moved from a fairly linear model...



...to a much more complex model at the distribution level, at which we operate the network:



2.1 Our Purpose and Principles

We have a huge responsibility to deliver for customers as customers don't choose us to be their network operator. That's why we go to such lengths to engage with our customers and stakeholders to develop our business plans.

The Net Zero transition will undoubtedly result in very significant increases in network demand by 2050 driven by both renewable generation connections and new demand such as electric vehicles and heat pumps.

Our key challenge in ED2 is to provide the capacity to allow customers to adopt these technologies whenever they wish to. While much uncertainty exists around the future technology mix, what is certain is that electricity will form a critical part of the UK's Net Zero strategy and our plan is designed to be flexible to meet that demand in an efficient manner.

The whole energy system is getting more and more interlinked so when we develop our plans we need to consider the whole system, not just the local distribution network. We need to find new ways of providing the capacity that people need. Using traditional techniques this would mean simply building a bigger network which can be expensive and disruptive.

Instead we can provide capacity in other ways, for example asking customers to be flexible in the way they use electricity to free up capacity when it's needed elsewhere, or during certain peak times of the day. A supermarket turning off its freezers or air conditioning units for a short time during the evening peak for example, makes very little difference to them, but scaled up across many businesses taking similar small steps, makes a significant difference to the electricity demand profile across the region.

Similarly, encouraging electric vehicle owners to charge their cars overnight means the load can be spread over a number of hours when traditionally electricity usage is low, smoothing out the demand across a longer period.

We have more than 2,000 colleagues as well as hundreds of contractors and people in our supply chain, and we provide an essential service to the five million people who live in the North West.

Our Purpose and Principles reflect the essential role we play in the North West and in the lives of our customers. They acknowledge how our role is changing alongside our customers' needs and embody what we do, the value we bring and how we will meet the challenge of enabling modern life for our customers and communities.

Transforming our communities is at the heart of our Purpose, ensuring we take a responsible approach in everything we do, including how we treat and support:

- our customers and communities;
- our environment; and
- our people and partners.

Sometimes referred to as our social contract, our Corporate Social Responsibility or our Environmental and Social Governance, our Responsibility Framework sets out how we work to deliver for our customers and stakeholders.

We are conscious of our wider role in the communities that we serve and society as a whole. In 2017 during ED1 we launched our organisational 'Purpose and Principles' in recognition of the crucial role we play in our communities and the increasing reliance our customers will have on electricity in the future. Our overarching Purpose 'Together we have the energy to transform our communities' is backed up by our Principles of being switched on, adaptable and taking pride.

Figure 2: Our purpose and principles

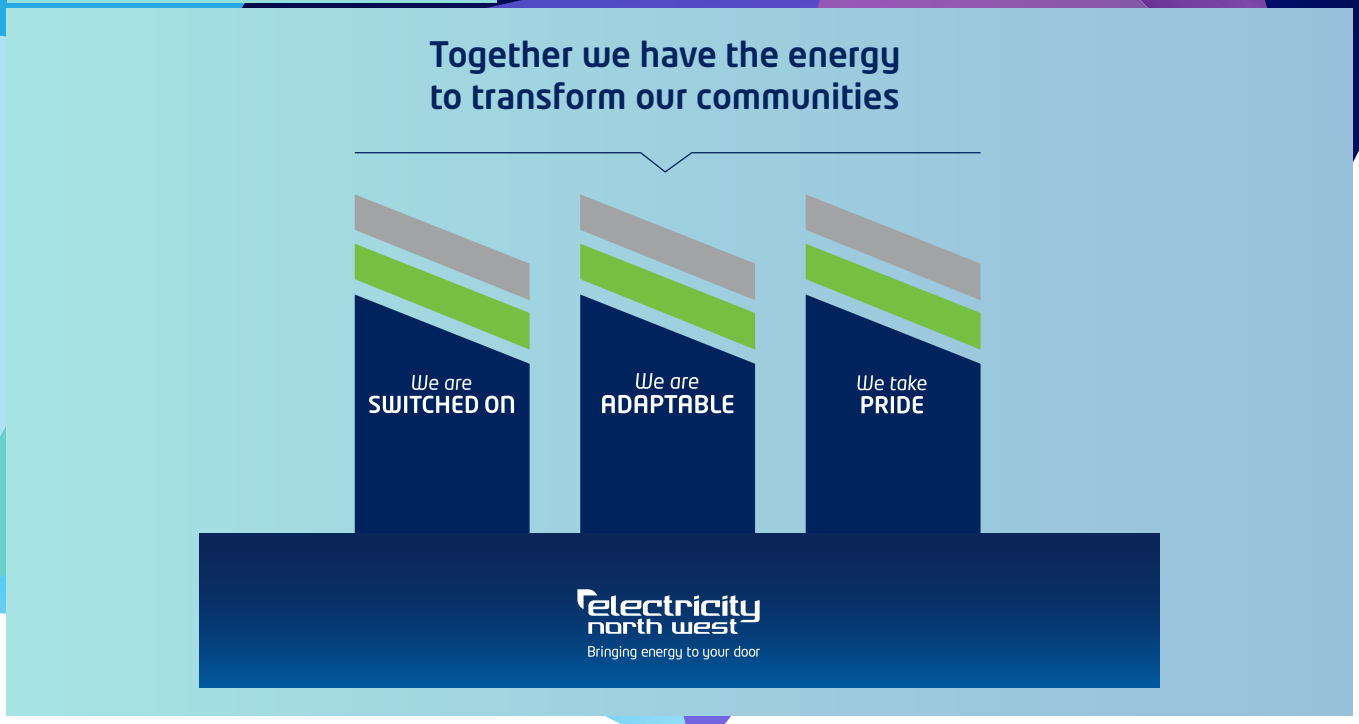
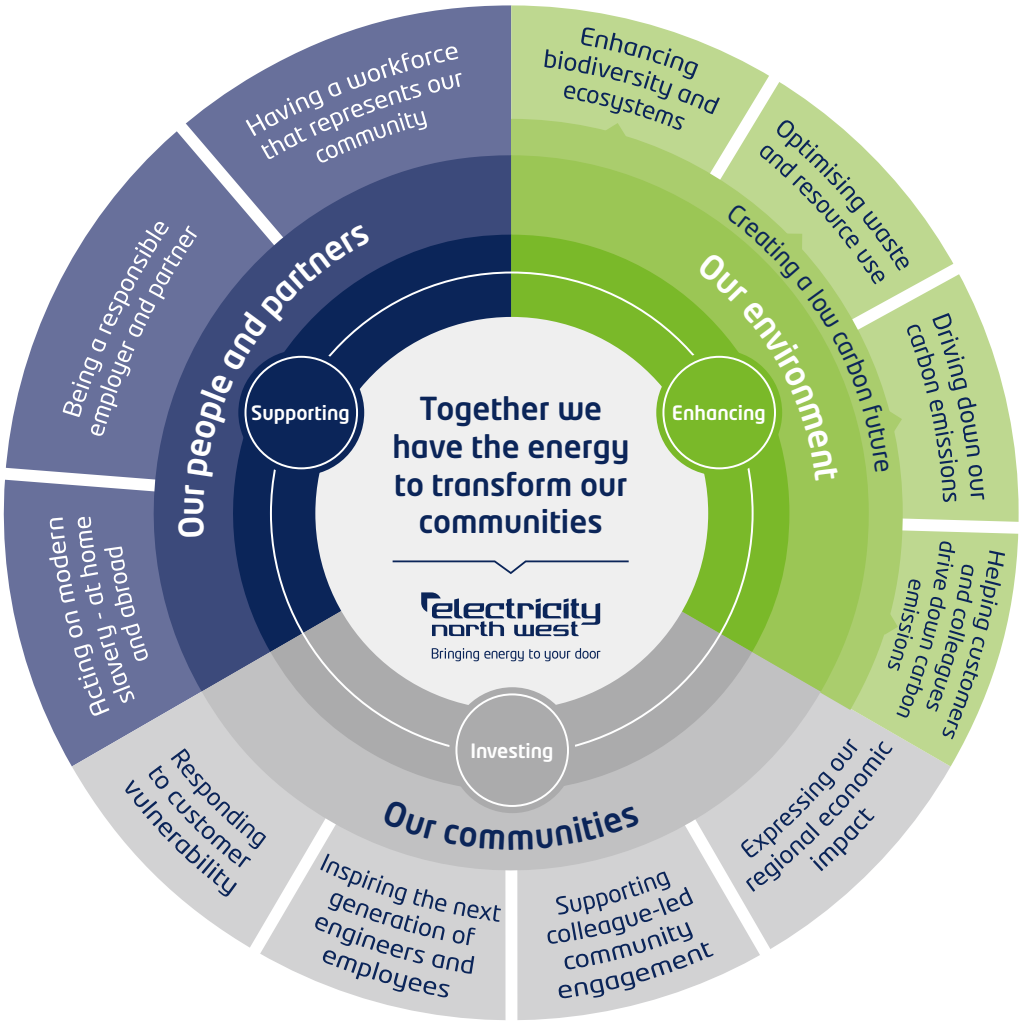


Figure 3: Transforming our communities responsibility framework



This purpose is central to our Responsibility Framework – 'Transforming our communities' which was launched in 2019 following an external best-practice review.

The framework on the left (Figure 3) demonstrates how we consider social, environmental and economic impacts in our decision-making, including how the activity delivers a wide positive and societal impact. Using best-practice examples and the work we have already done in ED1, the framework is structured to ensure that we consider a responsible and balanced approach across our business activities now and for the future.

Under our framework each key area: our communities; our environment; and our people and partners is divided into a number of goals which are important to our business, our stakeholders and our colleagues. Below each goal are a series of commitments and measures.

The responsibility framework does not exist in isolation. While it doesn't seek to include and measure our core business and services as a network operator, it does bring together a number of the activities and strategies already embedded in our operations and the business plan. In doing so it provides an overarching indication of our activities as a socially responsible business and how we operate within our communities.

The framework also provides an opportunity to demonstrate our impact and highlight other material and developing societal issues. For example, during its development in ED1 the framework helped us to increase our focus on biodiversity and ecosystems, elements of which are now incorporated into our Environmental Action Plan.

Measures are developed and monitored for all framework goal areas including those not covered by our business plan and reported in an annual Transforming our Communities Annual Report.

The table below highlights some of the interconnectivity between the framework and the wider business plan.

In developing our ED2 business plan, customer and stakeholder engagement provided valuable insight which is reflected in the wider business plan and our commitments. It highlighted the leading role that we can play in decarbonisation and environmental issues and support for wider societal involvement in areas such as support for customers in vulnerable circumstances, health and safety and education.

Our responsible business framework ensures that we will deliver these commitments in a responsible and transparent way working alongside our customers, stakeholders and communities.

We will continue to apply and develop our framework in ED2 to ensure that it always reflects the most material issues and take appropriate measures to manage our impact on our community, our environment and our people and partners.

We will continue to collaborate with other organisations and measure our framework against external best practice such as the United Nations Global Goals for Sustainable Development and Business in the Community and publish our performance in an annual report.

Figure 4: Our responsibility framework goals and associated strategies

Goal	Associated strategies within the business plan
Our communities	Diversity and inclusion strategy (Annex 27, appendix A)
	Education and awareness strategy (Annex 9)
	Electricity users in vulnerable circumstances strategy (Annex 8)
Our environment	Environment Action Plan (Annex 13)
	Community and local energy support (Annex 5)
Our people and partners	Workforce resilience (section 6.9)
	Supply chain (section 6.8)
	Diversity and inclusion strategy (Annex 27, appendix A)
	Environment Action Plan (Annex 13)

In this section

Section 3

Executive summary

The plan sets out a clear vision around Net Zero, with three headline commitments in the areas of Net Zero, network and customer, as well as 10 primary benefits. We'll make sure the network isn't a barrier to connecting electric vehicles, we'll improve reliability and we'll look after those in our area who find themselves in vulnerable circumstances. We'll deliver all this at the lowest cost to customers.

The leading DNO

Most innovative
DNO in ED1
according to Ofgem innovation rewards

Consistently
outstanding performance
Only DNO Group rated green in every Ofgem category for last five years running

- Reliability and availability
- Connections
- Social obligations
- Customer service
- Environment
- Safety

Most efficient
DNO in ED1
according to Ofgem assessment

Most reliable
network outside London

Globally recognised innovation
through CLASS

Only DNO to commit to and deliver
no worst-served customers
in ED1

Most advanced
digital Network Management System in Europe

This plan has been informed by more than 22,000 interactions with more than 18,000 customers, consumers and stakeholders, including 432 individual stakeholder organisations and almost 2,000 businesses and business representatives. It has been by far the largest consultation exercise Electricity North West has ever carried out and includes strong justification including cost benefit analysis, social return on investment and a view on whether we are best placed to deliver.

We developed this plan from the ground up, based on customer and stakeholder engagement. See our video below for a short sample of thoughts from key stakeholders from MPs, to Greater Manchester's Mayor, the Federation of Small Businesses, Local Enterprise Partnerships and others we have heard from in developing this plan. We thank all our customers and stakeholders for their engagement and input over the past couple of years to help bring this plan together.

Listen to what some of our customers and stakeholders have had to say about our priorities.

3.1 Vision and benefits

The essence of our business plan can be summed up by our vision:

Leading the North West to Net Zero

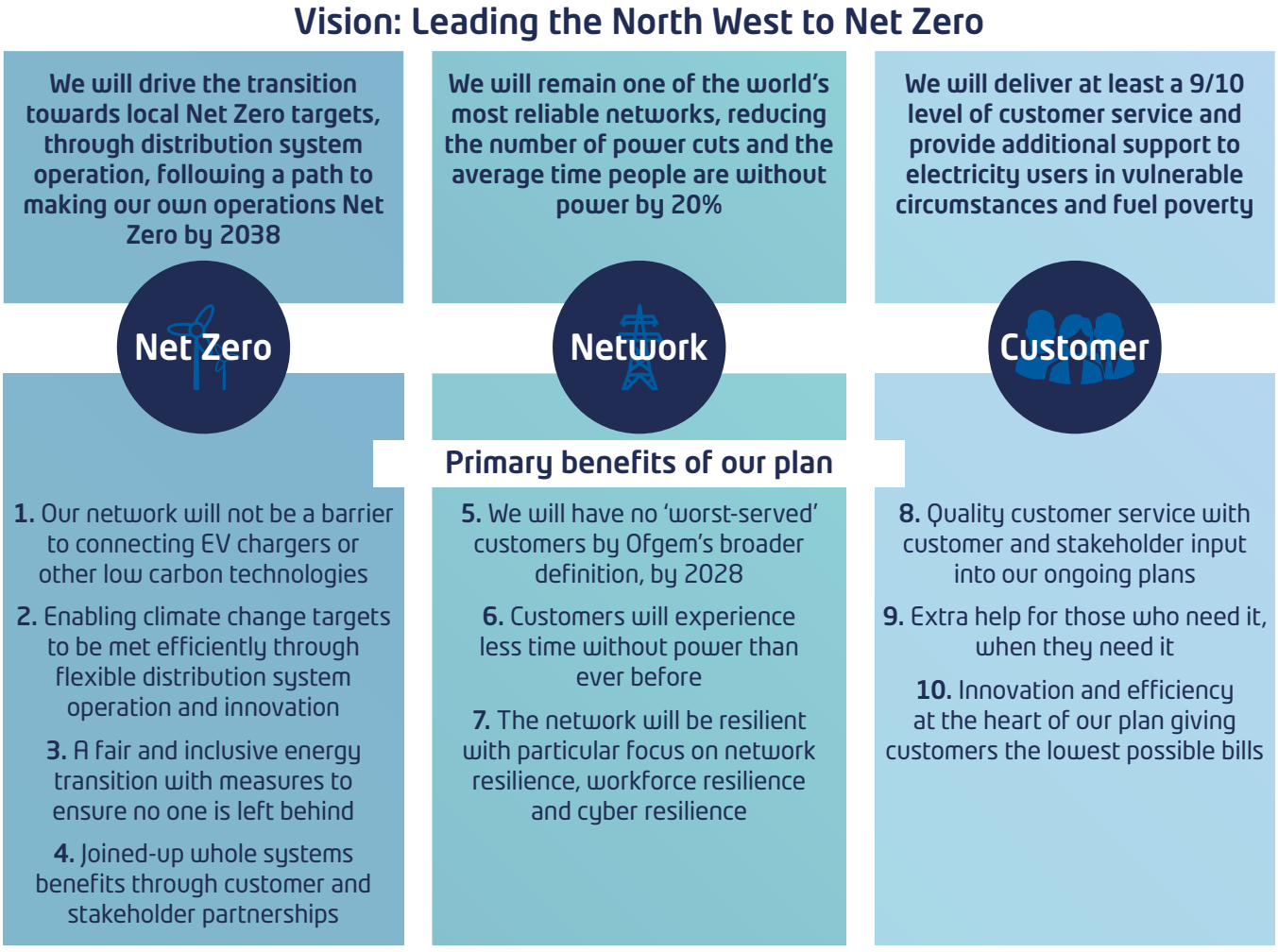
Reflecting significant engagement with customers and stakeholders, and the reality of the operating environment between now and 2028, everything in our plan comes back to delivering Net Zero at lowest cost to customers. In fact, we'll reduce our part of bills by an average of up to £12.49 a year compared to the current price control.

Recognition of an ever-increasing electrification of the energy to run their lives drives our customers' focus on reliability and resilience. Customers also tell us that we must not only support those in vulnerable circumstances, but also help them build the capability to participate in the Net Zero revolution that will change all our lives.

The following graphic sets out our vision, three headline commitments and 10 primary benefits. Under this sit our 47 deliverables split between 37 benefits derived directly from customer and stakeholder input and 10 outputs based on compliance or engineering justification.

Each of these benefits will be measurable via a scorecard with each of our 47 deliverables sitting under each theme of Net Zero, network or customer.

Figure 5: Our vision



3.2 Net Zero

The UK is now on an accelerated path to decarbonisation. By 2050, we will be a Net Zero economy. But to get there, the government is targeting a 68% carbon reduction by 2030.

This has major implications for local electricity networks, with more and more people due to switch to electric vehicles and increase their reliance on electricity for heating, leisure and work. Our customers will also change from consumers to '*pro*sumers', with more and more homes and businesses fitting solar panels to *produce* electricity themselves from renewable sources. And our customers expect us to be ready for these changes.

As the region's network operator, we're key to leading the region to Net Zero. We're focusing on three things to make it happen and we'll do it all at the lowest cost to customers:

1. Investing and innovating to make sure the network is fit for the future.
2. Helping domestic customers and businesses play their part, making new connections as quick and easy as possible while ensuring no one is left behind.
3. Reliability of the network – something that's fundamental as we all become more reliant on electricity.

We're signed up to the UN global Race to Zero and are working with the Science-Based Target initiative to set robust targets for our business.

Our engagement triangulation and analysis as well as the political environment in our region evidences a need for us to move more quickly than the UK's 2050 target. In line with Greater Manchester's Net Zero ambitions we will completely decarbonise our business by 2038, the latest of the three targets in our region (Cumbria's target being 2037 and Lancashire's 2030). In driving to Net Zero our science-based target determines the total carbon our business can emit between now and forever and our plans must ensure we don't exceed this target level.

Reaching this considered target will take significant work, efficiency, engagement, coordination and innovation.

Figure 6: Our Net Zero commitment and its benefits

Theme	Net Zero
Headline commitment	We will drive the transition towards local Net Zero targets, through distribution system operation, following a path to making our own operations Net Zero by 2038
Primary benefits of our plan	1. Our network will not be a barrier to connecting EV chargers or other low carbon technologies
	2. Enabling climate change targets to be met efficiently through flexible distribution system operation and innovation
	3. A fair and inclusive energy transition with measures to ensure no one is left behind
	4. Joined-up whole systems benefits through customer and stakeholder partnerships

We have included two Consumer Value Propositions (CVPs) as part of this plan which you can see in section 4.6.

1. **CLASS:** A world-leading technology already being used to balance the UK's grid and being rolled out to DNOs. While we have not associated any further capital cost to this CVP we want to highlight its continuing benefits to our customers and just how critical it will be to the changing energy landscape. We look forward to working with other networks to help them learn from our innovation.
2. **Smart Street:** Creating capacity to enable more low carbon technologies to connect to the local distribution network, while also reducing costs to customers and reducing carbon emissions as a massive contribution to help reach Net Zero.

These two CVPs demonstrate the power of Ofgem's long-term vision to support innovation and are supported by other innovations too.

In 2021 we went live with one of the most advanced network management systems (NMS) in the world. A joint development with Schneider Electric, this £35m investment futureproofs the network and allows more visibility and control of the low voltage network than ever before. The system provides a complete digital twin of the region's power grid allowing unprecedented access to real time information, the automation of our network and forms the foundation of the digital transformation of the region's energy eco-structure. This investment brings together CLASS, Smart Street and a host of other technology innovations to provide our customers with one of the most efficient and reliable networks fit for the Net Zero challenges ahead.

3.2.1 Getting Net Zero-ready through DSO

Achieving Net Zero requires a fundamental shift from Distribution Network Operation (DNO) to Distribution System Operation (DSO).

DSO is not one activity but rather the delivery and coordination of a range of functions that enables a network operator to develop a smart and flexible distribution system able to adapt to changing customer behaviour delivering network capacity for use by customers at the most efficient price.

To meet increasing demand, it may be more cost-effective to 'buy' rather than 'build' more capacity. But to do so we need to develop the market to offer this flexibility where and when it is needed.

Our DSO strategy is firmly flexibility first, using energy efficiency as a key complimentary approach, recognising the cross benefits it delivers in releasing capacity whilst also reducing costs for consumers and helping those customers in fuel poverty or vulnerable circumstances.

There are other benefits too. The estimated cost of the ED2 DSO transition plan is £7.3m a year; £36.4m for ED2. The estimated savings in the load-related expenditure budget for ED2 from distribution system operation activities is over £200m.

By delivering our DSO strategy, we will deliver Net Zero for our region at the lowest cost to customers.

Our DSO plan is made up of three component parts:

1. Planning and network development.
2. Network operation.
3. Market development.

In addition, we are adding another overarching objective – for us to help customers to act and benefit from these changes.

The specific roles and requirements of DSO show why we are best placed to deliver services 1-3. Our additional role, for us to help customers act is based on customer and stakeholder engagement and is important for us because education, engagement and support will help ensure acceptance of DSO activity, future engagement and ultimately success. The roles and objective are not sequential. In terms of our actions to help others we will do three things: lead by example; engage customers; and support them to take part in the transition.

We believe it is too soon and disruptive to progress legal separation of DSO functions and activities from the distribution network licensee. Instead we plan to use the ED2 period to develop the DSO activities through learn by doing and consolidate that learning into business as usual.

Transparency of decision-making is essential to build trust, engagement and confidence of our customers and stakeholders to make DSO a success and encourage maximum participation. To achieve this, we will establish a comprehensive set of measures for managing actual or perceived conflicts of interest:

1. Separate DSO directorate within the business.
2. Publishing criteria and decisions.
3. New DSO Compliance Officer.
4. New DSO Stakeholder Panel.

Combined, these measures provide a robust and transparent governance and reporting framework that will give confidence to our customers and stakeholders that we are always acting as a neutral market facilitator delivering network capacity for use by customers at the most efficient price. They will ensure that we are visibly accountable to those who know best about the effectiveness of our system operations.

In addition, we will assume all data is open to be shared to encourage participation and innovation.

3.2.2 Forecasting

As part of the development of our unique Architecture of Tools for Load Scenarios (ATLAS) forecasting methodology we significantly increased our engagement with customers and stakeholders to gather detailed information on their future development plans to start to assess the potential range of future demand and generation on the distribution network. In 2017 ATLAS was introduced into business as usual and in 2018 we were the first DNO to publish a Distribution Future Electricity Scenarios (DFES) document, in December 2021 we will publish our fourth.

Figure 7 below shows, the expected growth in low carbon technologies, driven by national policies and supplemented with stakeholders' development plans to achieve regional decarbonisation aspirations.

The increases over this decade are substantial and are driven by a blend of local early Net Zero aspirations and a background of economic development driven by the build back better and green recovery programmes devised following the pandemic.

Figure 7: Key forecasting assumptions

Scenario	Metric	2020	2030
Central Outlook	Annual consumption	23 TWh	29 TWh
	Electric vehicles	12,000	1 million
	Heat pumps	13,000	120,000
	Zero carbon generation	1.5 GW	2.1 GW
	Storage	85 MW	0.5 GW

3.2.3 Whole systems

As we guide our customers on the Net Zero journey a key role is one of coordination and cooperation with regional stakeholders, other industry sectors and other energy providers so that we collaboratively develop whole system outcomes at the lowest cost to customers.

There are a range of data exchange activities which already exist between electricity network operators and the system operator. In ED2, the quantity, quality, granularity, and frequency of these data exchanges will increase to deliver whole system coordination and efficiency of decision-making.

Our plan includes proposals for utilising energy efficiency measures to reduce demands on highly loaded areas of our network, as well as promoting general energy efficiency across the network. By reducing the overall demand on the network and promoting shifting when people use the network we can reduce the overall level of energy needing to be produced across the whole system, optimise energy usage to when it can be generated from renewable sources, and reduce the amount of overall investment required across the distribution and transmission networks. We have also seen that through engaging with energy efficiency programmes, this can be the catalyst to wider systemic changes to achieving Net Zero.

We have used our position at the heart of the energy and Net Zero landscape to bring stakeholders together to identify whole system approaches to tackling Net Zero challenges. We think about whole system in mutually supportive ways:

- the **whole energy and heat system**;
- the **whole transport system;** and
- the **whole customer support system**.

Collaborative working is a key feature of our established relationships addressing each of these key perspectives. This gives an established platform from which to continue to develop our whole system thinking with confidence.

3.2.3.1 Whole energy and heat system

Across the Greater Manchester city region we have been instrumental in establishing a Strategic Infrastructure Board that brings together utility and transport providers, key experts and local authorities to jointly plan the region's infrastructure development in a whole system manner. Through the Strategic Infrastructure Board we developed the country's first whole energy system decarbonisation pathway for Greater Manchester with our partner Cadent Gas. This approach has been replicated across the rest of the North West with whole energy system decarbonisation pathways produced for Cumbria and Lancashire too.

The work we have done has already been replicated more widely across the North West region after our approach was championed by Greater Manchester Mayor Andy Burnham and Liverpool City Region Mayor Steve Rotheram. We worked with Liverpool City Region and Scottish Power Energy Networks sharing best practice and helping develop a wider North West plan incorporating areas outside of our own operational footprint.

We are now working to establish a Strategic Infrastructure Board for Lancashire. In Cumbria we have worked with the County Council to develop a whole system Cumbrian Transport and Infrastructure Plan (CTIP) and discussion about a similar, close working relationship with Cumbria County Council and other whole system actors is underway.

We will continue to use our position to develop strategic partnerships, convening regional and national stakeholders to speak about their energy and decarbonisation needs, particularly those associated with regional planning processes. Together we are developing plans for low carbon transportation and housing development as part of supporting the local authorities to develop Local Area Energy Plans (LAEP). In RIIO-ED1 these plans will be completed for the ten local authorities in the Greater Manchester city region.

3.2.3.2 Whole transport system

Transport for the North (TfN) is the regional body that oversees the development of transport infrastructure, working with ourselves and local partners responsible for the provision of public services to holistically deliver whole system outcomes. Our engagement work with TfN focuses on the provision of electrical infrastructure for the decarbonisation of transport within our area. The whole system approach of our work with TfN means that we support all needs for network capacity to supply electricity to transport; including to bus depots, on bus routes, for on-street and off-street parking, in train and tram car parks, for tramways and even for bike storage and E-bike charging.

3.2.3.3 Whole customer support system

Working with our stakeholders and customers it is apparent that whole system thinking must be extended to include all parties actively tackling the challenges that face our communities today. Trust within communities is paramount if the UK and North West are to reach targets for Net Zero and bring customers on the journey with confidence. Having a whole systems approach built into our services helps us improve relationships with customers and communities to build trust.

Supplying a basic need of electricity to the North West provides us with an opportunity to maximise every contact we have to benefit electricity users. We have a role to make support accessible, building on our relationship to ensure that we are a trusted source of information to aid in the transition to Net Zero.

This is why we created the Utilities Together partnership. All members of the Utilities Together partnership are committed to increasing accessibility to support services, simplifying the registration process for everyone and minimising the effort required by the electricity user. We can achieve this by increasing our network of trusted partners who, with consent, can share data to provide support services to those on our Priority Services Register.

This includes data sharing agreements with suppliers of gas and electricity, United Utilities and gas transporters Cadent and Northern Gas Networks. We use embedded 'behind the scenes' processes that ensure customers only have to register once with any partner to receive a wide range of support benefits from us all.

Learning from our experience of the barriers to consumers taking up support offers, we are leading an initiative with Utilities Together and our strategic partner Citizens Advice Manchester. We have identified a gap in the provision of advice which is not being updated to help customers start to understand and prepare for Net Zero using new gadgets, appliances and technology. In readiness for the changes ahead, we are bringing our industry insight and knowledge to energy efficiency support service providers and vulnerability charities, helping them become more aware of what Net Zero might mean to their service users. This includes providing training and expertise in addition to content for their educational materials.

3.2.4 Community and local energy

The green agenda will see more community-owned, renewable energy projects take shape – and our customers and stakeholders want us to support them. That's why, from 2023, we will double our annual grant for community energy projects, such as neighbourhood-owned wind, solar and hydro projects. Provided there continues to be an over subscription, this fund will increase throughout ED2 to meet the growing demand.

3.3 Network

Figure 8: Our Network commitment and its benefits

Theme	Network
Headline commitment	We will remain one of the world's most reliable networks, reducing the number of power cuts and the average time people are without power by 20%
Primary benefits of our plan	5. We will have no 'worst-served' customers by Ofgem's broader definition, by 2028
	6. Customers will experience less time without power than ever before
	7. The network will be resilient with particular focus on network resilience, workforce resilience and cyber resilience

Our customers and stakeholders have made it very clear that our fundamental role is to keep power flowing to customers and network users.

We will manage our network to make it easier for households to adopt new, energy saving technologies, by providing a free advice service and by 'unlooping' shared services – where multiple properties share the same cables and are therefore currently restricted in what low carbon technologies they can adopt.

And we will continue to reinvent ourselves as an organisation – moving from a 'top down' approach where our role is simply to look after a closed network, to a facilitator in a more democratic electricity landscape, working with lots of local organisations to get their renewable electricity flowing through the region's cables.

3.3.1 Reliability

On average, an Electricity North West customer experiences a power cut around once every four years and is without electricity for less than half an hour every year. This represents a reliability level of 99.995% and is one of the most reliable networks in Great Britain and the world. However, we know that power cuts can be very disruptive when they do happen and the Net Zero transition means that we are all becoming more reliant on electricity for transport and heating so we expect that to increase in future. This is why it is the right thing to do to continue to focus on reliability, despite already good performance.

We're committing to reducing power cuts and customers' time without power by a further 20% on average in RIIO-ED2 – a figure backed by customers and stakeholders. By focusing increased targeted investment in the right areas we can ensure that we have the biggest impact for customers, improving reliability and reducing power cuts.

The excellent reliability at a regional level does mask significant variations at a more local level however which is why we are responding to feedback from our customers to do more for the small number of customers who experience the worst levels of reliability. This poorer performance is usually due to the way the network was built in some, particularly highly rural areas. As a result, it is often expensive to implement significant improvements for these customers and the traditional reliability incentives focusing on average performance would ignore them.

We don't think that this is fair and customers have also told us that we should look to level up performance across our region. To tackle this, we will invest in the network so that there are no 'worst-served' customers by Ofgem's new broader definition by 2028. We were the only DNO to commit to having no worst-served customers by Ofgem's previous definition by the

end of ED1 and we will continue this leading position despite the new stretching target.

We are also aware that electricity is even more vital to those customers who are highly vulnerable and rely on a reliable supply for things such as medical equipment. Following discussion with our customers we are also proposing a further programme to improve reliability in areas where there are high concentrations of these highly vulnerable customers. These areas may not currently be experiencing poor service, but the consequences of it would be significant if it happened. As a result, we are proposing to strengthen the network in these specific areas through a targeted programme of network improvements to ensure the probability and consequences of any future power cut are minimised to these customers.

3.3.2 Resilience

Our network has to withstand the external environment and other risks to ensure it continues to operate reliably even under extreme circumstances, e.g. severe winter storms. We already carry out a lot of work to minimise the risk of such events and also prepare ourselves to react quickly and appropriately when severe events do happen. However, we are aware that these risks are changing and increasing over time and we have to continually update our preparations.

We know that climate change will cause more extreme weather events, as well as changes in the weather we experience in the future. We have worked collaboratively with the other electricity networks over a long period of time to assess these risks and plan to continue investing in flood defences and the management of vegetation around our overhead lines as the two biggest risks to our network as we adapt to the consequences of a changing climate.

We also need to ensure that the network and our operations are resilient to both physical and cyber attacks. As electricity networks become increasingly data-enabled, it is more important than ever that the data networks that support them are resilient. Following government and industry guidance we are committed to the right level of investment to keep our network and data safe. We have used the Cyber Assessment Framework to develop our plan to ensure at least compliance if not exceeding regulations.

Finally, this plan also sets out how we will manage our workforce to ensure that we have a resilience strategy in place to deliver everything we need to address these challenges and deliver the Net Zero transition.

3.3.3 Safety

Safety remains at the core of our operations and we take the safety of the public and those working on our network very seriously. We will continue to operate a safe network and ensure that the work we carry out in RIIO-ED2 is completed in a safe manner.

To ensure that the network remains safe, we will invest in a number of specific programmes to ensure that the danger to the public is minimised, remove potentially unsafe equipment from our network and ensure that our key sites are appropriately protected against malicious entry. We are also planning to expand our safety awareness and education programmes to ensure that the risks of electricity are well known, from education programmes in schools through to targeted safety campaigns targeted at particular areas, e.g. farmers or the fishing community.

3.4 Customer

Figure 9: Our Customer commitment and its benefits

Theme	Customer
Headline commitment	We will deliver at least a 9/10 level of customer service and provide additional support to electricity users in vulnerable circumstances and fuel poverty
Primary benefits of our plan	8. Quality customer service with customer and stakeholder input into our ongoing plans
	9. Extra help for those who need it, when they need it
	10. Innovation and efficiency at the heart of our plan giving customers the lowest possible bills

3.4.1 Customer service

Customers have told us they want us to continue to evolve our service and to achieve at least 9/10 for customer satisfaction every year.

We will make it even easier for customers to get in touch, by enhancing our online services and making it easier to get through on the phone by increasing the size of our team.

Businesses will receive dedicated support through our expanded business register for help and advice in the event of power cuts.

3.4.2 Extra help for those who need it

Our stakeholders have warned us that COVID-19 will almost certainly increase the number of customers impacted by transitory vulnerability, both now and beyond 2023.

They also want us to do even more to help alleviate fuel poverty and to make sure that customers who are already economically and socially disadvantaged are not left even further behind as we change the way we live, work and travel in response to the climate agenda. We hear this call and are responding.

We will make £2m per year available to work with trusted partner organisations, to support the 250,000 customers in our region who are in fuel poverty, by 2028.

We will launch a new £250,000 annual fund to remove barriers that prevent the take-up of low carbon technologies such as electric vehicles and solar panels, with the money targeted at those in vulnerable circumstances. The fund will focus on building capability so that customers are not unfairly disadvantaged and all are able to benefit from the transition to Net Zero.

We're proposing to roll out our pioneering Street Smart technology to 250,000 customers in disadvantaged neighbourhoods. This technology continually makes small adjustments to local network voltage to reduce electricity usage and bills, without affecting customer appliances and is our first specific customer value proposition.

We will grow our Priority Services Register even further from the one million people we already help, ensuring everyone who is eligible has the opportunity to join, and increasing membership so that a minimum of 60% of eligible customers are registered. We will work more closely with other utility providers, with whom we share the same customers, to make sure we offer more joined-up support.

We will train all our colleagues to better recognise, understand and support those in vulnerable circumstances. Our approach will be tiered and targeted, to ensure education and awareness is aligned to roles and responsibilities to maximise our ability to recognise and reduce the effects of vulnerabilities.

And we will double the amount we spend on partner referral networks to £500,000 a year to establish partnerships with organisations with specialist skills to help customers in the most vulnerable circumstances. This is in addition to our £2m a year fund to support those in fuel poverty. We recognise the opportunity we have to help and will refer customers to these services to ensure they get the support they need.

3.4.3 Keeping bills low

Affordable bills have always been a priority for our customers, but they have told us they are willing to pay a bit more for an ambitious plan that meets their needs.

81% of customers have told us that they would accept a £9.80 increase to our part of their bill to get the level of service they want. With the long-term impacts of COVID-19 unknown, and with 12.1% of people in the North West in fuel poverty, we believe we must rise to the challenge and deliver the bold and ambitious commitments in this plan for less than that.

Through innovation, efficiencies, lower financing costs and good management of our pension deficit throughout ED1, we are able to keep costs as low as possible for customers during ED2. We are also proposing to use a number of uncertainty mechanisms to reduce risk to customers of paying upfront in bills for work where there is uncertainty over when exactly it will be required.

The 33% increase in expenditure when compared to the ED1 levels is driven by three macro factors; the challenge of decarbonisation, the increased ambitions of our customers and stakeholders and the changing regulations and obligations that increase the costs of carrying out our core activities.

Examples of each respective driver include the need to maintain and replace smart devices and extend low voltage monitoring across the network, rolling out the innovative high-rise building monitoring technologies, cyber resilience and Polychlorinated Biphenyls (PCB) removal.

Despite increased expenditure and delivery requirements, when using Ofgem's financing assumptions for ease of comparison of bills between DNOs, the Electricity North West element of customers' bills would reduce by £12.49 in ED2. While a lot of work has gone into making our operations more efficient, including reassessment of some of our proposed customer funds, one of the key reasons for this reduction is those financing assumptions. Unfortunately our analysis shows that using these assumptions would in reality make the business unfinanceable.

We are committed to reducing bills but will need to work with Ofgem to determine realistic financing arrangements. While our customers have shown a willingness to pay up to £9.80 more on their bills compared to ED1, we know there is a lot of uncertainty around the Net Zero transition. Keeping our bills significantly lower at this stage gives us more headroom in future to flex as required, ensuring that whatever happens, we don't exceed the range that customers are willing to pay.

This plan benefits from significant reductions in costs when compared to the allowances set for the ED1 period that total around £335m on five-year comparison. Our business plan was assessed by Ofgem as the most efficient for ED1 and we are set to deliver all of the outputs in this period for a net 7.5% less than allowances, a saving of £141m. From this efficient base we have identified around £95m of specific reductions against a roll forward of these ED1 expenditure levels.

Additionally, our ED2 business plan includes further significant discounting, about £100m, on this efficient starting position. The reductions include flexibility discounts on reinforcement forecasts and innovation benefits built into business as usual such as fault level solutions and oil regeneration of transformers. The reductions also include an ongoing efficiency assumption and the benefit of accelerating green recovery projects into ED1 that are funded without allowances.

Clearly financing costs are going to be a significant issue for all networks, and as such, we discussed these in detail with our engaged Plugged In Public deliberative Panel of 40 customers to hear customers' views on this key issue for the first time. See section 9 and Annex 1 for their input.

This final business plan submission includes a range of options to ensure our business can be sustainably financed.

3.5 Engagement and justification

Giving customers and stakeholders a voice is a fundamental part of our business that we have embedded over the past decade. We have had a fantastic response from our engagement activities through what has been our largest ever engagement exercise. We have also incorporated more third-party information and sources into our decision-making than ever before.

We take responsibility for decision-making rather than see it as a joint endeavour with customers. We are very conscious that opinions of customers and stakeholders are only part of the story. As well as engagement, we are conscious of the need to fully justify our decisions so we have developed a specific framework to help us do that in the most transparent way.

3.5.1 Engagement

This plan is based on thorough, high quality and robust research and engagement. Not only are our processes and channels clearly set out later in this plan and in our annex, but we believe that our decision-making will be the most transparent of any network, thanks to our comprehensive and detailed triangulation process.

The process is set out while necessarily long to incorporate the full extent of our engagement, research, feedback and decisions we have spent significant effort organising and structuring the annex to be easily navigable in line with the narrative.

3.5.2 Justification

This is an ambitious plan and we recognise that it needs significant justification. The plan is clearly evidenced as being based on customer and stakeholder wants and needs (as detailed in Annex 1). Our 47 deliverables derived from customers and stakeholder engagement however require additional scrutiny – just because customers and stakeholders want them and are willing to pay for them doesn't necessarily mean they offer good value, or should automatically be included in this plan.

We have developed a thorough justification process for proposals through our rigorous customer and stakeholder engagement. When finalising our justification for our proposals, we ensured that each proposal was positively assessed against at least one of the following:

1. Cost benefit analysis/engineering justification papers.
2. Social return on investment.
3. Direct customer £ benefit.
4. Full triangulation.
5. Willingness to pay.
6. Are we best placed?

After that, we added a final test of whether we were the best placed organisation to deliver.

This justification is rigorous, transparent and pragmatic to ensure the best value for our customers. For more detail on our justification see section 5.

This plan is based on thorough, high quality and robust research and engagement. Not only are our processes and channels clearly set out later in this plan and in our annex, but we believe that our decision-making will be the most transparent of any network

3.6 Using innovation and technology to deliver our plan

Delivering a plan of this magnitude relies heavily on efficiency, innovation and the right technology. During ED1 we've developed industry-leading and world-leading innovative solutions to the challenges facing DNOs, from CLASS and Smart Street to forecasting methodologies like ATLAS. Our operational IT in particular will play a huge role in the delivery of our plan and getting the most from these innovations.

As the only single DNO, we have proved our efficiency and innovation in ED1 but we must still make the same investments in technology as much larger groups but without the economy of scale.

An example of our ED1 investment is our £35m Network Management System, the bespoke platform that will enable delivery of some key roles including active network management and flexibility coordination required to get the most from our CLASS and Smart Street innovations.

Technology is central to our digital transformation and coupled with our need to modernise energy data will contribute to ongoing efficiency as we manage and deliver the transition to Net Zero.

Our operational IT is the system that fundamentally underpins network reliability, coordination and restoration of power. It is also essential to effective cyber resilience. In ED1 we recruited our first cyber security apprentices in recognition of our changing responsibilities and the challenges facing DNOs.

One of our key areas of focus is to invest in 'friendly for field' equipment which ultimately improves efficiency by making it easier for colleagues out and about on the network help make direct data corrections and process information faster with fewer people and manual processes involved. This improves data quality, reduces inefficient time by enabling the right people to focus on the network and customer needs, and reduces costs.

Investment in the right IT systems and processes also allows our colleagues to focus on their primary roles utilising their full skills in the most efficient manner without additional admin and paperwork. This increases efficiency by reducing the need for additional time or people to support the additional investment for Net Zero. By enabling our teams to do the work they are paid for more efficiently we will get better value while also improving morale, increasing motivation, engagement and ultimately retention.

Together these investments in modern, supportable IT systems add up to increased productivity and value, increased efficiency and IT reliability. Our IT is a vital foundation on which we perform our business functions.

3.7 Summary of all deliverables

The table below shows all our deliverables, grouped into our three themes of customer, network and environment then further segmented into the seven priority areas we were told to focus on through our engagement. Many will be delivered by enhanced IT, such as a new customer relationship management tool and an innovative world-leading network management system upgrade. You can see the detail behind each of these in section 4.

The first table lists our 37 benefits derived from customer and stakeholder input as B1-B37. The second table lists 10 compliance or engineering-driven outputs as O1-O10.

Figure 10: Our business plan outputs and benefits

#	Benefit	Current performance	New target
Customer			
Meeting our customers' needs			
B1	Making it even easier for customers to contact us	Five existing channels	Two new channels: chat bots and self service facilities
B2	Providing additional support to businesses during power cuts	Trial of Business PSR	Fully operational Business PSR
B3	Improving the speed and quality of our responses to customers	Peak of 90.6% customer satisfaction (20-21)	At least 90% customer satisfaction despite increasing demands and expectations
B4	Providing faster quotes and faster completion for new connections	Exceeding Ofgem targets	Exceeding Ofgem targets
B5	Reducing the time it takes to complete emergency roadworks	Five days	Three days
B6	Increasing community-focused approaches to engagement	Successful trials	Community engagement team improving access to information on network issues
Supporting customers in vulnerable circumstances			
B7	Collaborating more closely with other utilities	Utilities Together forum with Cadent and United Utilities	Enhanced coordination with utility providers to support vulnerable customers
B8	Doubling investment in referral networks	£250k a year	£500k a year
B9	Expanding the reach of our Priority Services Register	50% of those eligible are registered	At least 60% of those eligible to be registered
B10	Creating an innovation fund to ensure no one is left behind	None	New £250k a year fund
B11	Supporting customers in fuel poverty	Various initiatives and trials e.g., Citizens Advice partnership	£2m a year to support 250k customers in fuel poverty
B12	Developing new customer advisory panels	Panels set up for business plan engagement	New panels including a panel for customers in vulnerable circumstances
B13	Home welfare visits for electricity users in vulnerable circumstances experiencing long-duration power cuts	Ad hoc welfare visits	We'll proactively offer welfare visits to all customers in vulnerable circumstances who are without power for 12+ hours

#	Benefit	Current performance	New target
B14	Introducing all-colleague training for vulnerable circumstances and mental wellbeing	Training focused on contact centre colleagues	100% of colleagues trained in vulnerability and mental health
Network			
Delivering a reliable network			
B15	Reducing the number of power cuts	Once every four years 28 interruptions per year per 100 customers	Reduce frequency of power cuts by 20% from 2021-2023 levels
B16	Reducing the duration of power cuts	27 minutes lost per year per 100 customers	Reduce time off supply by 20% from 2021-2023 levels
B17	No 'worst-served' customers by the end of ED2	Limited programme using Ofgem's ED1 'worst-served' customer scheme	No 'worst-served' customers by Ofgem's new definition by 2028
B18	Improving reliability for electricity users in vulnerable circumstances	Investments for 56 key sites only (hospitals etc.)	Improved network reliability for areas where there is a high number of electricity users in vulnerable circumstances
Delivering a resilient network			
B19	Improving flood protection	All sites identified by EA flood data protected from risk of flooding in a one in 100 year storm event	Protect 21 new and 15 existing sites identified by Environment Agency data from risk of flooding in a one in 100 year storm event
B20	Improving our management of trees near overhead lines	Compliance	Enhanced management and 10,000 trees planted each year
B21	Increasing cyber resilience	Completed self assessment under new Cyber Assessment Framework	Comply with requirements of Network & Information System Regulations
B22	Maintaining resilience in a changing climate	Monitoring climate change effects	Implementing Climate Change Resilience Strategy
Keeping our communities safe			
B23	Making electricity in high-rise buildings safer	Monitoring electrical risks in 52 highest risk high-rise buildings	Installing electrical monitoring in 234 high risk high-rise buildings
B24	Delivering safety campaigns	Taking part in national safety awareness campaigns	Leading regionally-focused, multi-utility safety campaigns
B25	Increasing safety education	Safety education focused on primary schools	Wider safety education focused on secondary schools
B26	Improving overhead line safety	Developed and trialled technology to identify low-hanging lines	Roll out LineSiGHT technology across the overhead line network
Environment			
Leading the North West to Net Zero			
B27	Helping customers connect low carbon technologies	Providing capacity in line with our network management plans and forecasts	Ensuring capacity is provided in the right place and at the right time as demands increase
B28	Removing constraints for renewables	Constraints in certain areas increasing the cost of renewable generation connection	Remove constraints for renewable generation connection
B29	Establishing a new community energy fund	£75,000 per year fund	Up to £2m over ED2

#	Benefit	Current performance	New target
B30	Unlooping customers' power supplies	Few hundred services unlooped when requested	Unloop 32k services to properties adopting low carbon technologies
B31	Providing a decarbonisation advice service	Online decarbonisation hub recently established (www.enwl.co.uk/GoNetZero)	Continue to provide, develop and promote advice hub
	Improving our direct environmental impact		
B32	Reducing our business carbon footprint	Two zero carbon sites and a 26% reduction in carbon footprint (2015-2020) to 18,051 tCO_2e/yr	Five new Zero carbon sites. Reduce carbon footprint to 8,175 tCO_2e/yr
B33	Reducing leakage from oil-filled cables	More than 30k litres of oil leaked per year on average	Less than 25k litres of oil leaked per year on average (17% reduction)
B34	Removing overhead lines in beauty spots	Remove 7-8km of overhead line a year	Maintain programme
B35	Reducing losses from the network	11 GWh per year through proactive programme	Reduce losses by a further eight GWh per year through proactive programme
B36	Reducing emissions of potent greenhouse gases from equipment	SF_6 leakage rate at 0.32% per year	Reduce SF_6 leakage rate to below 0.3% per year
B37	Making our sites havens for wildlife	11 sites enhanced, 30 more identified	100 sites enhanced

#	Output	Current performance	New target
O1	Maintaining high levels of competition in connections in the North West	Competition enabled in 95% of connections markets, more than any other DNO	Continue enabling competition
O2	Improving network health	Maintain current level of risk	Invest to maintain current levels of risk
O3	Measuring and reporting short power cuts	Measurement	Increased accuracy and consistency across DNOs
O4	Improving telecommunications resilience	Establishing internet protocol connections to all major substations	Enhanced communications infrastructure resilience
O5	Investing in Electricity System Restoration readiness	Compliance with existing electricity system restoration standards	Compliance with new electricity system restoration standards
O6	Keeping rural transformers safe	Maintaining aging rural transformers	Replace 110 small rural transformers
O7	Enhancing security at major sites	Expanded security to counter new threats	Maintain security programme
O8	Improving safety of underground cable pits	Developed efficient techniques during link box programme	Intervene on entire cable pit population to improve safety
O9	Carrying out proactive safety checks on cut-outs	Respond to safety issues identified by meter operators	Initiate regular cut-out safety check programme
O10	Complying with new legislation on PCBs	Compliance with previous legislation	Elimination of PCB contamination risk from our network equipment

3.8 Deliverables in support of Net Zero

Our plan, summarised in the 47 deliverables in the previous figure, will help us lead the North West to Net Zero. There are a huge amount of linkages between what we have put in this plan and delivering Net Zero.

The table below sets out some of those linkages, which you will find in more detail throughout this document.

Figure 11: Our Net Zero deliverables

What we'll deliver	How it relates to Net Zero
Whole system benefits	We don't operate in isolation. We are an essential link in the Net Zero chain and we must all work together as we lay the foundations for many other parts of the industry and workforce to deliver Net Zero.
Distribution System Operation	Our 'flexibility first' approach and activity to help develop a market to participate, will increase capacity on the network in the most efficient way to cope with forecasted rises in electricity demand while keeping costs for customers low.
Innovation	We have developed two world-leading innovations right here in the North West to meet the necessity of increasing capacity and reducing cost. CLASS and Smart Street show off our innovative credentials in tackling the industry's fundamental challenges and we have lots more ideas to develop.
Improved reliability	Improved reliability across our region as a whole, and specifically for worst-served customers and those in vulnerable circumstances where current regulations don't provide funding will ensure that we all have access to evermore essential electricity to run our lives.
Prompt, fast, efficient customer service	Enabling customers to take advantage of low carbon technologies easily with the right information and service provision when they need it, reducing barriers.
Enhanced customer and stakeholder engagement	Things are moving quickly with Net Zero and low carbon technologies so we need to stay close to our customers and stakeholders through ongoing engagement to spot emerging trends and understand any implications for our business.
Leaving no one behind	We need to do our part to ensure a just transition to Net Zero. This starts with improving our service to those who will benefit most by targeting customers in vulnerable circumstances with Smart Street and reliability improvements. We'll also build capabilities within our workforce, partners and communities to enable everyone to engage in and benefit from the transition.
Growth challenge with maintaining high levels of customer satisfaction	Net Zero will lead to more activity so we need to invest to maintain our excellent customer satisfaction scores as expectations continue to rise.
Growth in digital exposure through Net Zero with enhanced cyber capability	As reliance on the electricity network increases, our cyber capabilities and cyber resilience measures must also increase to address the potentially increasing likelihood of threats and avoid increased impacts.
Climate change impact with network resilience investment	Climate change is expected to increase both impact and likelihood of weather-related incidents that we must prepare for.
Financial risk with rapid growth in investment linked to Net Zero	The pace of change is driven by many factors beyond our sole control. Risk is increased with uncertainty so it's important that this is considered and included in plans.
Rapid growth with skills, supply chain and workforce resilience	Our procurement, workforce resilience and diversity and inclusion strategies address the need for this increased growth driven by Net Zero.
Diversity and Inclusion with improved customer insight	By engaging more inclusively with customers, stakeholders and a workforce that is more representative of our region we will gain deeper insights into how we can ensure that we are providing a service fit for all of our customers.
Digital technology	Digital tech supports the move to Net Zero through smart networks enabling the best use of the network to achieve efficient capacity.

In this section

Section 4

Benefits, outputs and measurement

This plan sets out how we'll deliver on Net Zero and whole systems, alongside 37 specific benefits, 10 outputs and two consumer value propositions. Together they'll deliver our 10 primary benefits and ultimately our vision of leading the North West to Net Zero. We'll measure our delivery across six scorecards and will be held to account by our stakeholders.

These 37 benefits are derived from customer and stakeholder engagement and are fully justified via a thorough process including at least one of the following measures:

1. Cost Benefit Analysis.
2. Direct customer £ benefit.
3. Social Return On Investment.
4. Willingness to pay and wider customer and stakeholder evidence and triangulation.

In addition, we used a final test of whether we were the best placed organisation to deliver.

We also include 10 outputs that are either compliance or engineering driven. Justification for these proposals can be seen in Ofgem documentation and our own engineering justification papers.

Here, we have summarised the feedback that informed each proposal, including a table to show some of the key engagement methods used – to make it easy to see how our plans have been informed and shaped by conversations with our customers and stakeholders.

We have also included a table showing the method of justification used to maintain the benefit within our plan.

For full details of the triangulation of information that sits behind every one of our proposals, see Annex 1 for in-depth breakdowns of our research and engagement input leading to the inclusion and scale of propositions made in this section.

There are also a wide range of activities that the business undertakes that are necessary to deliver our proposals, such as running the control room; keeping our records up to date; design and planning etc.

Where useful, we have included incremental investment figures for various projects. However, section 6 contains a much more detailed breakdown of how our ED2 business plan will be funded.

For the purposes of clarity we have also added section 8 to highlight some key regulatory requirements within this plan. Section 8 covers information on our licence obligations, price control deliverables and output delivery incentives, as well as regulatory uncertainty mechanisms.

4.1 Our DSO strategy to lead the North West to Net Zero

Distribution System Operation (DSO) is the fundamental shift in network operation that will enable us to lead the North West to Net Zero at lowest cost to customers.

In 2019 we committed to lead the North West to zero carbon. We set out that commitment in a separate Leading the North West to Net Zero plan, launched at Greater Manchester's Green Summit. That plan was driven by a recognition that we had a key role to play in the North West and the UK's action on climate change, and that we needed to expand on the commitments made in our Business Plan for 2015-23.

Two years on, the plan has helped us place action on climate change at the heart of the business. All of our management team have been trained in climate change, as part of our work as the first 'Carbon Literate' DNO in the world.

In the six years from the start of ED1 in 2015 to March 2021 we reduced our business carbon footprint by 42% (10,425 tCO_2e)

We have helped our workforce to take action through supporting it to shift to electric vehicles and change behaviours at work and at home. We have provided support to our business and domestic customers to help them on their carbon reduction journeys. And we're one of the first 3,000 global businesses to join the UN Race to Zero, ensuring we take action in line with the latest science and the 1.5ºC goal

This plan sets out our next phase of action on climate change. Net Zero is no longer the subject of a separate, additional plan, it is now the central goal of our activities during 2023-28. We are committed to leading the North West to Net Zero.

This commitment is underpinned by two key objectives that we believe are shared by our regulator Ofgem and UK Government. Firstly, the need for the urgent reduction in CO_2 emissions, in line with the global 1.5ºC goal. And secondly, the very real opportunity to improve the lives of the people and businesses of the North West through cheaper energy bills, cleaner air, secure energy supplies and the creation of well-paid jobs in the growing low carbon and renewable energy sector.

We'll realise this commitment through two main areas of activity during 2023-28:

1. Firstly, we'll ensure that network is ready for our customers to connect EVs, heat pumps, solar panels, batteries, and other low carbon technologies – we'll do this through our transition to DSO.
2. And secondly, we'll take a proactive role in helping our customers to take action on Net Zero – a role we know they want us to deliver from our work together to develop this plan.

By the time this business plan has been delivered in 2028, the UK's power sector will be on track to be fully decarbonised by 2035. This is the most significant change that has happened to our industry in many years. We're excited to be part of it, investing and innovating for the benefit of our communities here in the North West and ultimately around the world.

DSO is how it will happen.

DSO is not one activity but the delivery and coordination of a range of functions designed to deliver electricity network capacity for use by customers at the most efficient price. Our region's ability to reach to Net Zero is dependent on an affordable energy transition plan, which includes us moving to DSO.

In ED2 we will continue to strengthen and deepen our work with our stakeholders and customers helping them adopt low carbon technologies while we continue to efficiently develop the systems, processes and people to deliver this transition efficiently. This section summarises our DSO transition plan highlighting the themes underpinning the DSO

functions covering the three broad roles of planning and network development, network operation and market development.

The detail explaining the delivery plan and how we achieve, and in certain areas exceed the baseline expectations for these roles is contained in Annex 2, titled Our ED2 DSO Transition Plan.

Our delivery of the new and enhanced DSO functions is based on bespoke world-leading innovations developed by Electricity North West, including our Architecture of Tools for Load Scenarios (ATLAS) forecasting methodology and our Real Options Cost Benefit Analysis (ROCBA) tool. Both have set the benchmark for other DNOs, while our ongoing innovation has led us to develop one of the most advanced networks in the world through our bespoke Network Management System developed in collaboration with Schneider Electric. Other networks use more 'off-the-shelf' solutions developed by General Electric, however our bold innovations have paved the way and show our core innovative values as a business.

4.1.1 DSO costs and benefits

Our DSO transition plan will drive benefits for customers and society, with customers benefitting from the lowest possible bills while we facilitate the transition to Net Zero for the North West region. The delivery cost for developing the enhanced functionality for DSO and performing these new and extended activities is £7.3m per year over the ED2 price control period; whereas the benefits are estimated at over £200m.

Figure 12 illustrates the potential savings from the delivery of enhanced DSO functionality reflected in the reduced load-related budget. The savings are driven from the application of innovative solutions developed in ED2 and previous price control periods, the more accurate network planning from the use of our world class bespoke ATLAS forecasting methodology and more granular data from the introduction of smart metering and network monitoring and the procuring of flexibility services instead of creating new capacity by reinforcing network assets. The estimated savings in the load-related expenditure budget from distribution system activities is over £248m.

Figure 12: Optimisation of ED2 load-related investment through smart and flex benefits

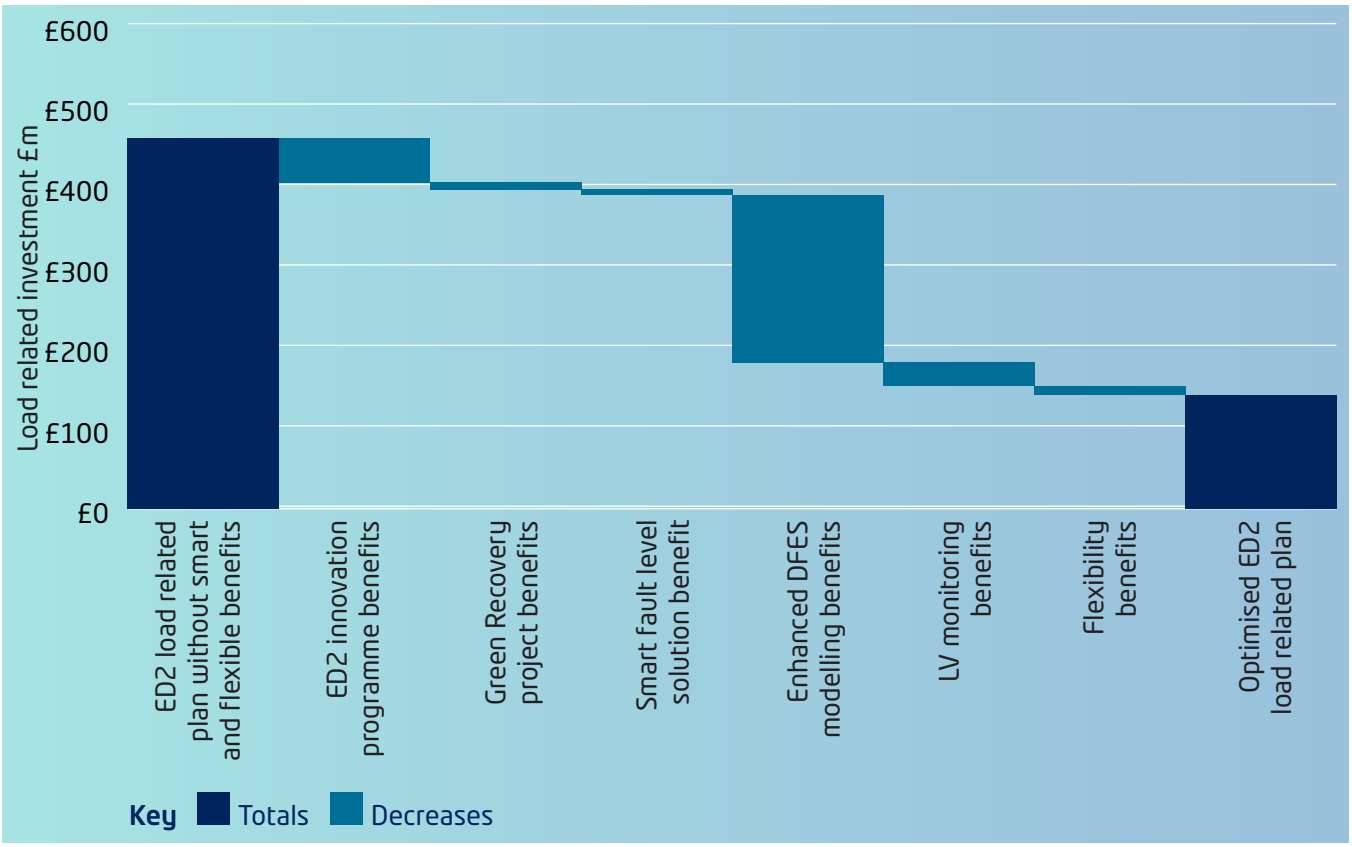
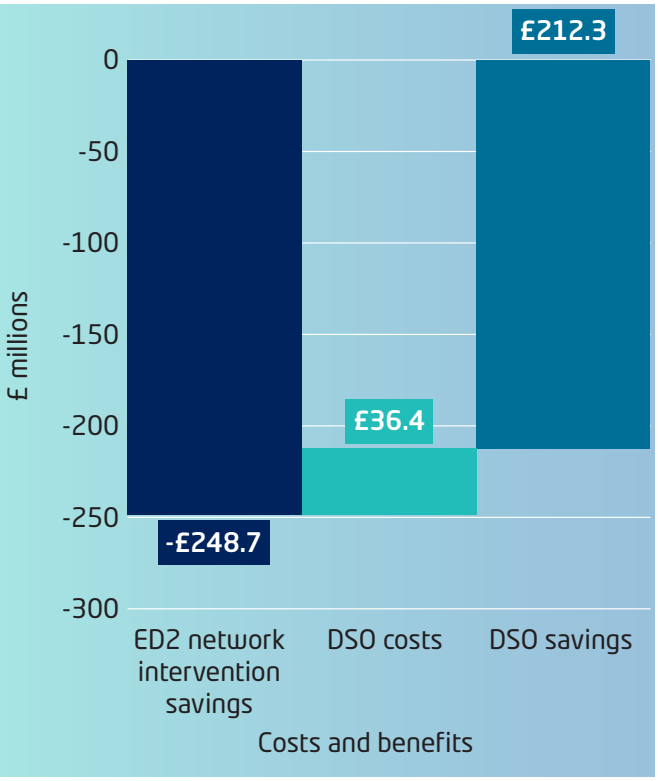


Figure 13: Estimated total savings from DSO activities in ED2



Our DSO Transition Plan sets out our initiatives for the next price control period. In RIIO-ED2 we plan to invest £2.8m in flexibility services instead of primary and secondary reinforcement, a further £14.2m on IT systems split between new systems and the development of existing systems and £19.4m in people and processes to deliver the DSO roles, activities and baseline expectations for RIIO-ED2.

The expenditure in new systems relates to the development of an active network management system and a flexibility management system to operate flexible network assets and contracted customers. There are refresh and upgrade costs for our forecasting and evaluation tools and costs for the provision of interfaces for sharing data using agreed common formats.

4.1.2 Stakeholder involvement in DSO transition

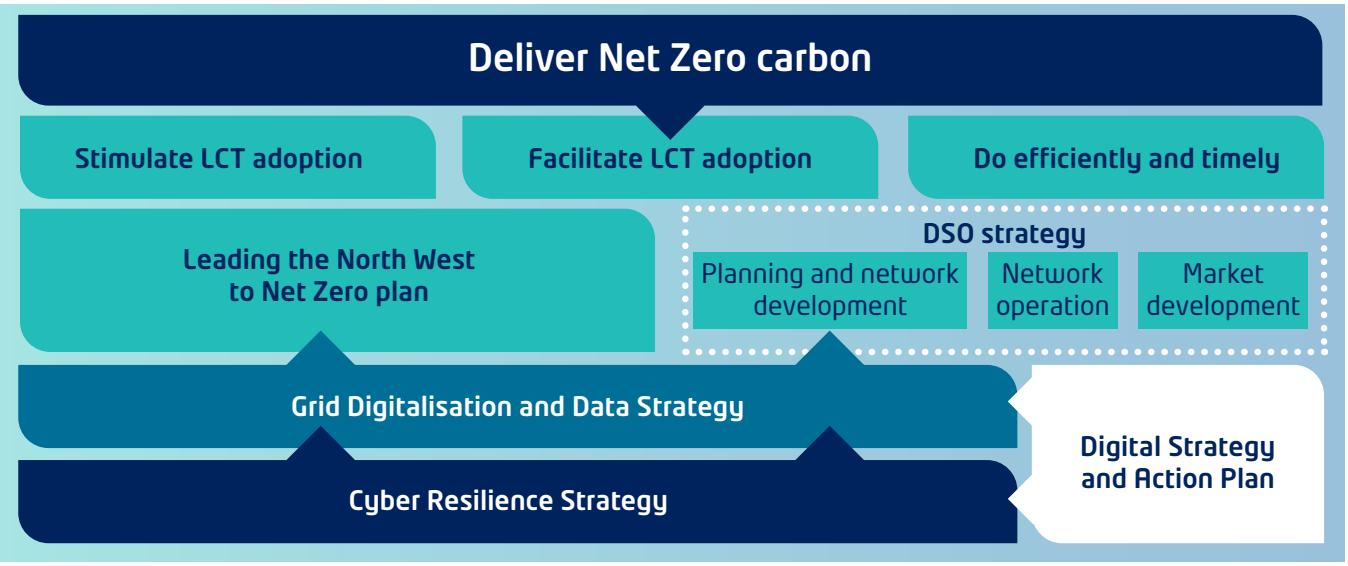
Our customers and stakeholders have told us that they want to be involved in our DSO transition.

In ED1 we explained to our stakeholders how our carbon and DSO Transition Plans dovetailed to support our region's approach to delivering Net Zero emissions. In response to their feedback we were the only DNO to publish a decarbonisation plan, Leading the North West to Net Zero.

The plan delivered a range of actions to support the development of local government plans for decarbonisation. This is an ongoing action and as a trusted voice in ED2 we will stimulate the adoption of low carbon technologies by continuing to promote simple affordable actions that customers, businesses and stakeholders can take to lower their carbon emissions.

We have, with the support of the Customer Engagement Group (CEG), developed the terms of reference for an independent DSO Stakeholder Panel to run throughout ED2. Our vision is that the new independent DSO Stakeholder Panel will, on behalf of the DSO stakeholder community, work with the

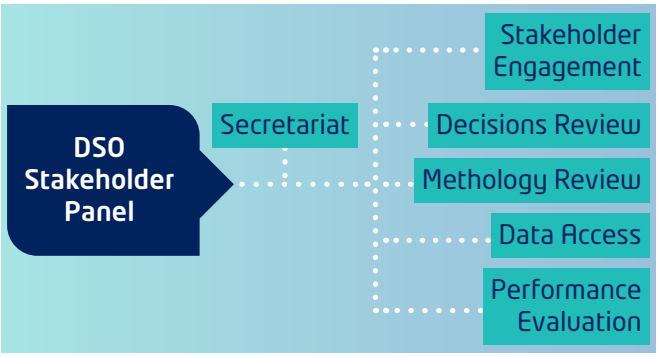
Figure 14: How our strategies will work together to deliver Net Zero



organisation to help shape the DSO transition. The purpose of the proposed DSO Stakeholder Panel is to provide independent oversight, challenge, review and guidance on our DSO transition. We will use the engagement with the Panel to better inform both the ongoing delivery of the DSO Transition plan and the development of the forward DSO strategy and activities. Our proposal is that the DSO Stakeholder Panel will be formed with the scope to:

1. Oversee and guide our engagement with the regional and national DSO stakeholder community.
2. Manage equitability, transparency and challenge of decisions.
3. Review and approve methodologies for forecasting, modelling and decision-making.
4. Define data access for everyone and specifically network users; including what data, in what format, delivered where and at what frequency.
5. Monitor and evaluate our ongoing performance, using evidence from our DSO stakeholder community and in accordance with Ofgem guidance, and publish the performance report.

Figure 15: Our proposed DSO Stakeholder Panel and its responsibilities



Data will be a particularly important focus for the independent panel as it is a foundational element for the transition to DSO. We will also seek guidance from the panel on how to deliver bespoke engagement plans, particularly for the customers in vulnerable circumstances ensuring fairness and inclusivity so no one is left behind by the transition.

We will seek input from national stakeholders through our joint work with other licensees at an industry level. We will continue to work with other licensees within industry groups such as the Energy Network Association (ENA) Open Networks Project, in which Electricity North West has taken a leading role, to develop and implement new standards and best practice.

4.1.3 Separation of DSO and managing conflicts of interest

Our stakeholders told us in response to our DSO consultations that we need to do more to deliver complete confidence that we are acting as a neutral market facilitator and being open and transparent in all our actions so that there are no conflicts of interest. As openness is key to gaining our customers' confidence we will fully separate DSO activities and introduce new compliance measures in ED2.

On 1 December 2021 we restructured our organisation, forming a new DSO directorate, led by an Executive Director reporting to the Chief Executive Officer. The DSO directorate will focus on the efficient and transparent provision of network capacity and there will be clear organisational responsibilities to the executive defined by our unique 'table of accountabilities' approach.

The table of accountabilities is a method, used within Electricity North West, for assigning the roles and responsibilities for the organisation's obligations to ensure that there is executive ownership of each obligation and clear senior leader accountability for the strategy and implementation elements. This is essential for example where the strategy is set by the DSO and delivered by the DNO.

We will appoint an independent DSO Compliance Officer responsible for monitoring and reporting compliance to ensure there is the appropriate separation of responsibilities and to manage actual or perceived conflicts of interest, showing that we are truly acting as a neutral market facilitator.

We will continue to be open and transparent by publishing the data, methodologies and rules for decision-making undertaken by the DSO teams and reporting of the outcome of investment decisions. Our work in ED1 on sharing our approaches on forecasting, identifying needs, selecting and evaluating options and sharing the outcomes of our decisions continue as we further develop our world-leading tools of ATLAS and Real Options Cost Benefit Analysis (ROCBA).

Our new independent DSO Stakeholder Panel, which we will establish in the final year of ED1, will provide oversight on decisions and methodologies as well as guiding, supporting and evaluating delivery of DSO transition. The DSO Stakeholder Panel will have the power to:

- review challenged intervention decisions, and make recommendations to overturn decisions if appropriate, and
- review our methodologies and make recommendations for their change.

The DSO Director, Head of DSO and DSO Compliance Officer will work with the newly formed DSO Stakeholder Panel to ensure that there are no conflicts of interest, and that our decision-making is fair, clear, open and transparent.

4.1.4 Data and data sharing

Access to data is a key enabler for the transition to DSO. Data is essential to forecasting where and when capacity will be required and to the delivery of economic solutions.

In ED1 we supported the Energy Data Task Force's recommendations and Ofgem's data best practice, and with industry colleagues started preparing the available data for sharing from within network operator businesses.

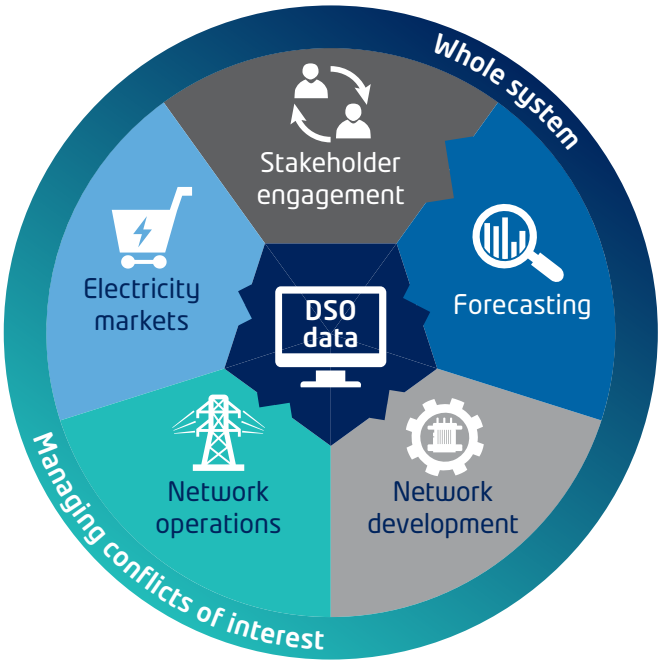
We will presume that all data is open unless after triaging it is classified as confidential or commercially sensitive. In ED2 we will continue to publish the Digitalisation Strategy and Action Plan, regularly updating it in line with customer and stakeholder need. We will make available a wide range of planning and operational data that meets the expectations of the data best practice guidance and guided by our DSO Stakeholder Panel; for example, following feedback from our stakeholders already, we propose to publish:

- heatmaps for all voltage levels that will indicate the hosting capacity/available headroom by network asset;
- a range of forecasts, by scenario, for all voltage levels and areas of the network; and
- near real-time constraint and merit order information that will enable flexible resources to participate in managing the network and enter into bilateral arrangements to trade curtailment risk.

All our data will be accessible via a data repository on our website for customers, stakeholders, and other interested third parties. They can either download our published data, or where practical visualise it, using a visualisation tool for greater insights.

Application Programming Interfaces (APIs) will also be available to allow data sharing services/platforms to retrieve and host our published data.

Figure 16: DSO data and it's uses



4.1.5 Whole system outcomes

Our stakeholders have told us that we should consider our network needs together with the needs of the whole energy system when making decisions to maximise benefits and ensure a more cohesive approach to energy system planning and operation. This wider responsibility is central to our DSO transition plan and encompasses data sharing, forecasting and planning.

Within network planning: In ED2 we will share, in planning and operational timescales, our reactive power (MVAr) forecasts at the interface points with the National Grid to enable the Electricity System Operator (ESO) to enhance their modelling of reactive power flows for managing network voltage.

Within investment decisions: In ED2 we will introduce a process and methodology within the ROCBA evaluation tool to identify and evaluate the benefits of the options from the perspective of other system or network licensees. Where possible it will be quantitative, but even if it is only qualitative it will allow us to consider whole system benefits in our decision-making.

Promoting whole system, including heat and transport, options: The publication of a full range of heatmaps, from 132kV to LV, in ED2 will facilitate the development of the flexibility services markets and enable third-party options to be developed for mitigating network needs. Through our annual Distribution Future Electricity Scenarios engagement we are well placed to support local authorities to develop their local area energy plans (LAEPs). To aid the development of effective local plans we will recruit three new energy planning engineers to share our knowledge, experience and data in network planning for the benefit of our local communities, ensuring that there is a coordinated whole system approach across the electricity, energy, heat and transport sectors embedded into the LAEPs across our region.

In DCPR5 we successfully delivered the CLASS project using Low Carbon Network innovation funding. CLASS showed how demand can be varied using voltage control. In ED1 CLASS became business as usual and now, as well as managing our own peak demand needs, CLASS can be used by the ESO for managing frequency and system security. In ED2 the CLASS functionality will be evaluated further to be offered to the ESO for the provision of reactive power absorption for managing network voltage.

4.1.6 Forecasting and network planning

One of our principal roles with DSO is to ensure we economically create the capacity our customers need in sufficient time to allow them to decarbonise their lives. This can only be efficiently achieved through the analysis and understanding of current and future network power flows. The processes of forecasting and network planning are key to enabling us to understand the real world needs of technologies such as electrified transportation and electric heat on domestic and non-domestic demand.

Forecasting: ED1 saw us develop and introduce the ATLAS forecasting methodology. ATLAS takes information from our regional stakeholders and using the national Future Energy Scenario framework creates a range of future network demand and generation forecasts. These help us understand how the network can accommodate the capacity needs of our stakeholders. We continue to enhance the capabilities of ATLAS; for example, we are currently developing the EV uncertainty framework. ATLAS also allows us to create a range of forecasts, including a central risk scenario known as the Central Outlook which is used for all planning activities. Central Outlook was chosen as the best view scenario and further information on our forecasting, the range of scenarios, and why we have chosen Central Outlook for our planning is included in Annex 3 Load-Related Expenditure Annex, Part B – Methodology.

This approach allows us to produce our stakeholder facing Distribution Future Electricity Scenarios (DFES), Long-Term Development Statement (LTDS) and Network Development Plan (NDP) information together with various regulatory reports such as load indices. All of this data is published on our website and provided to other industry/national data sharing services/platforms.

Figure 17: An overview of the stakeholder information in DFES

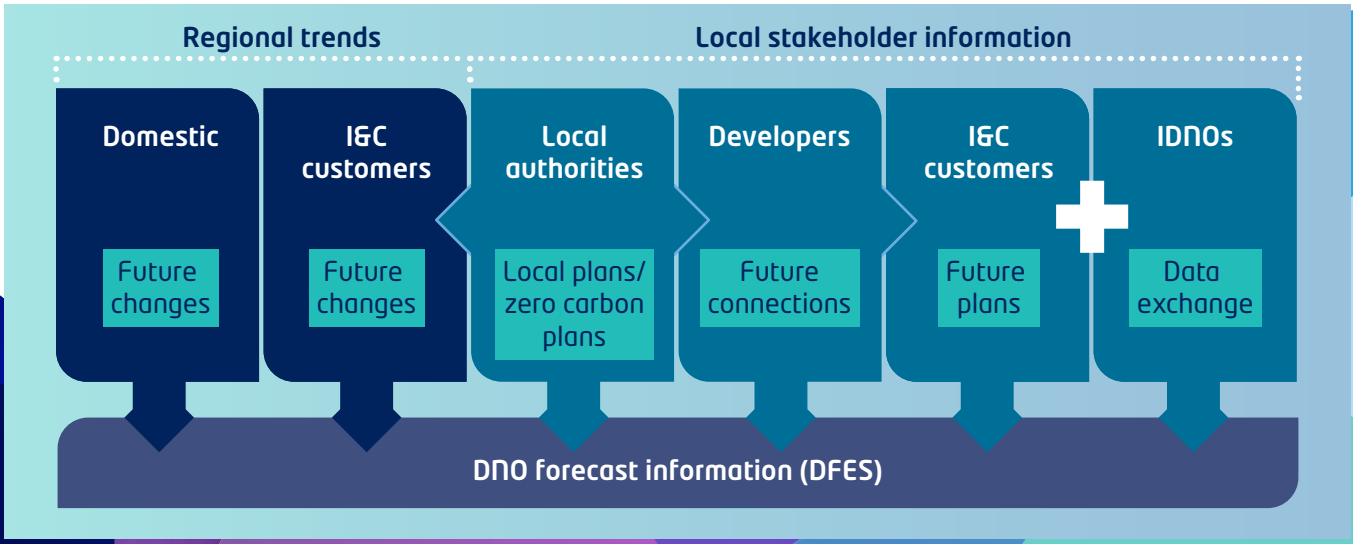


Figure 18: ATLAS – our forecasting methodology and it's uses

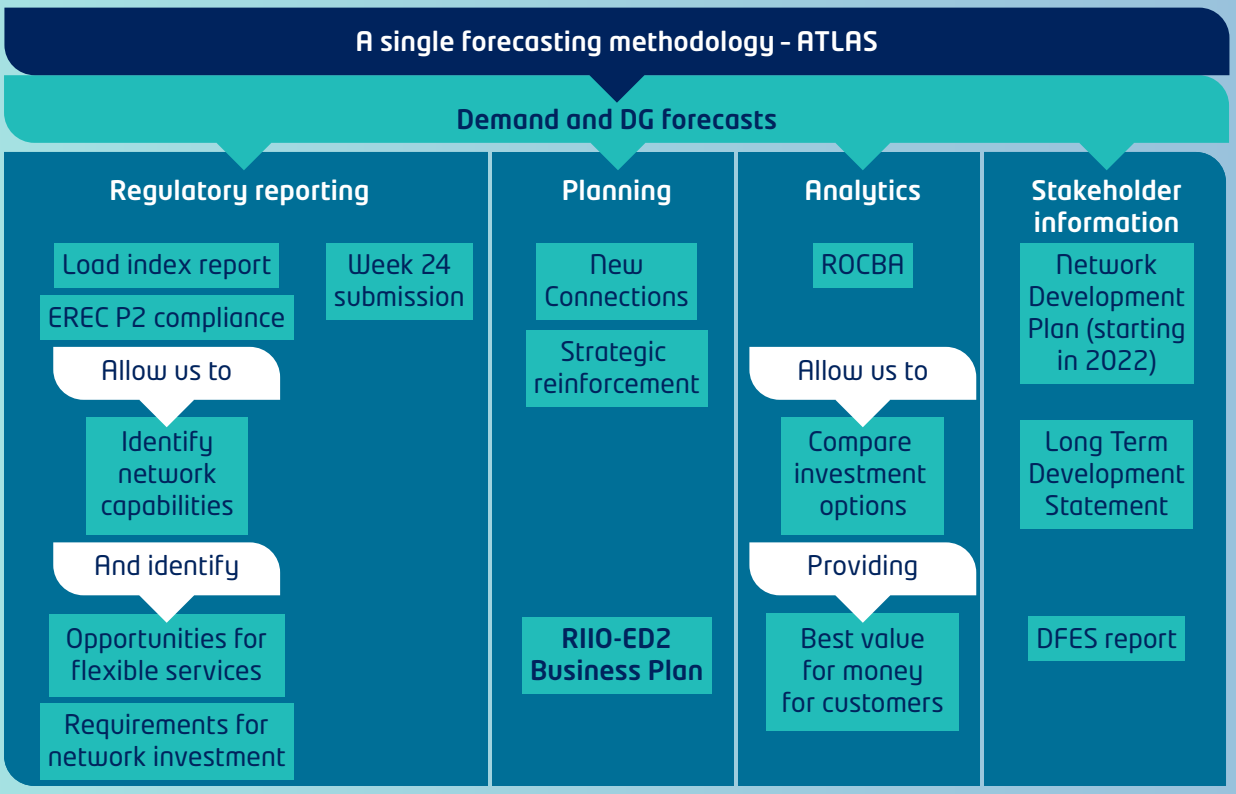


Figure 19: ATLAS – forecasting and enhanced engagement model

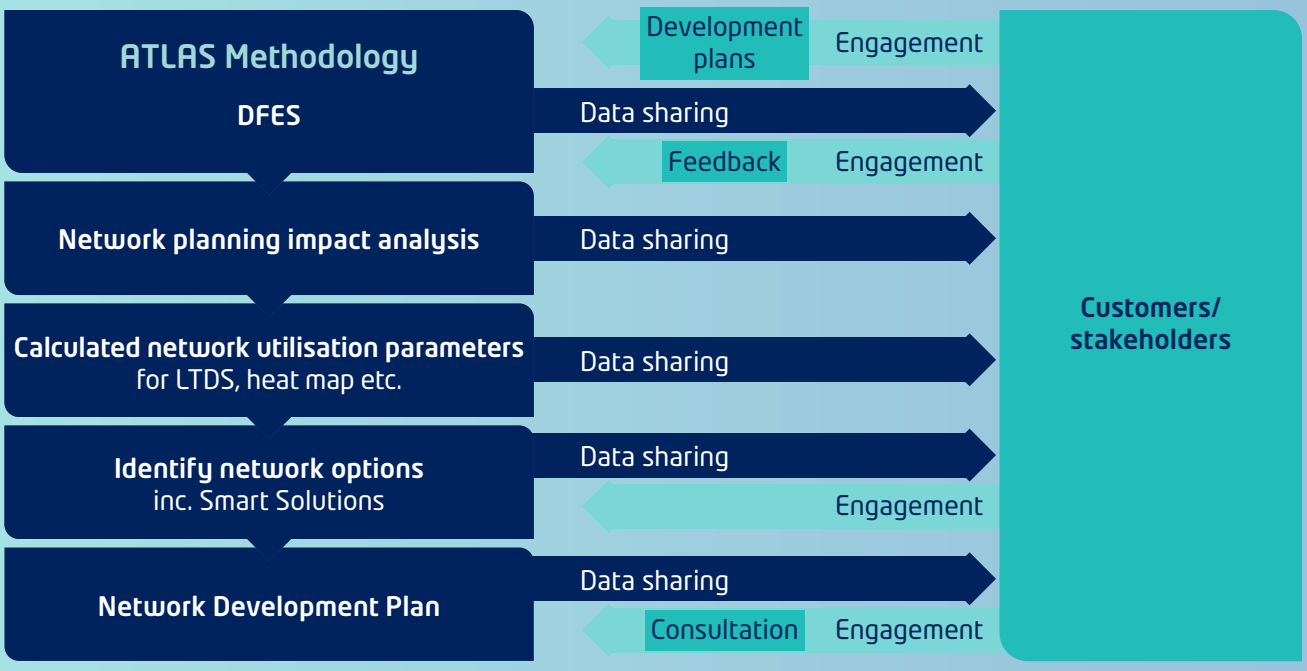
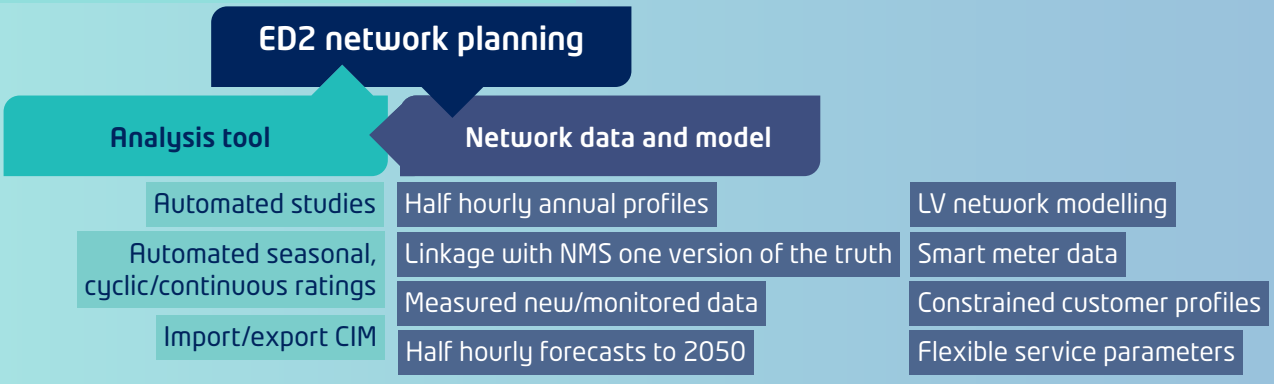


Figure 20: Data and our ED2 network planning



Our stakeholder engagement shows that customers require us to only invest in capacity where we have confidence in future needs aligned with our stakeholders' regional Net Zero targets; therefore in ED2 we will improve ATLAS further by incorporating aggregated smart meter data together with power flow information from our own LV network monitors to improve the accuracy of our HV and LV network forecasts. We will also incorporate data from other sources for example independent Distribution Network Operators (IDNOs).

Our Connect and Manage research in ED1 has shown how monitoring and analysis can enable significant additional capacity to be released using existing assets that customers have already paid for. By the end of ED1, LV monitoring will be installed on our most populous ground mounted substations supplying around 1.024 million customers, and we will have access to consumption data from smart meters for up to 70% of our domestic customers.

In ED2 we will continue tactical installation of network monitoring on HV and LV circuits ensuring that we achieve 100% network visibility when combined with smart meter consumption data. This will deliver savings to our customers through the continuation of the Connect and Manage programme by releasing additional capacity from existing assets facilitating the adoption of more LCTs (see Network Visibility Strategy Annex 4 and section 9.2 on Network Monitoring Initiative in DSO Transition Plan – Annex 3). This greater visibility of the LV and HV networks will enable us to model networks more accurately and more efficiently target new capacity provision. Our HV and LV data including heatmaps will be published both on our website and on industry/national data sharing services/platforms.

Network planning: In our planning methodology document we explain how we use the forecasts derived from the future needs of our stakeholders, to make well justified, efficient and transparent decisions. The document defines the analysis methodology and our processes to ensure compliance with the national network resilience standard EREC P2/7.

In ED2 we will refresh and upgrade our network planning tools. This will enable us to plan more complex network solutions with the increasing numbers of flexible connections and flexible services solutions within Active Network Management (ANM) arrangements as well as sharing our single network model and network data with all stakeholders using the Common Information Model (CIM) protocol. This will enable many benefits, such as:

- Developers being able to determine their own point of connection.
- Clear visibility of where we have network capacity availability.
- Assisting flexibility services providers to locate in the optimum position for whole system benefits.

4.1.7 Transparency in delivering efficient solutions

In facilitating DSO, we must always ensure that we deliver any new capacity needed by our customers in the most efficient manner possible. This section explains how we will ensure all possible options are identified, how we manage the uncertainty inherent in forecasts, and how we select the most efficient option in a transparent and open manner using our ROCBA evaluation tool.

Increasing solution options: Positively engaging with as many solution providers as possible in all our decisions is key to our strategy of delivering efficiencies for customers. In ED2 we will engage the help of others to find new solutions to our network issues, ensuring that we have the widest range of options possible for evaluation and adopt the most suitable economic approaches.

We will publish information on all network constraints to encourage potential solutions from all parties e.g. flexibility providers, customers, electricity system operator (ESO), transmission operators (TO), other distribution network operators (DNO) and independent distribution network operators (IDNO), and groups such as local or community energy groups. This holistic approach would, for example, allow a community energy group to bring forward a proposal for an energy efficiency programme in its locality to solve a network capacity need.

Managing uncertainty within investment planning: Since autumn 2016 our network investment decisions have been informed by our pioneering Real Options Cost Benefit Analysis (ROCBA) tool developed in conjunction with the University of Manchester. ROCBA enables us to evaluate the relative economic benefits of all intervention options against the needs across the whole range of our network forecasts,

defined by ATLAS. It allows us to evaluate flexibility services, energy efficiency measures, investment deferral, or network reinforcement on an equal basis to ensure we take informed decisions. Whilst we plan and design our networks using our Central Outlook scenario, ROCBA allows us to test our options against all possible future scenarios, defined from our DFES, before deciding upon the right course of action.

The Common Evaluation Methodology (CEM) and tool, developed within the Open Networks Project is derived from our ROCBA tool and as such is the industry equivalent for flexibility evaluations. During ED2 we will continue to develop ROCBA to maintain its position as a state of the art decision support tool across all network investment strategies.

Managing uncertainty within delivery: We need to ensure we appropriately manage the cost variability inherent in the delivery of any selected capacity solutions and that all intervention options are examined equitably. To achieve this, we will include uncertainty in asset-based intervention costs.

In the case of a flexibility services provision the cost of delivery is largely fixed by contract and depends only on its utilisation; whilst for traditional asset-based reinforcement the budget design cost may increase due to external factors.

To ensure the value of flexibility is treated equitably at all stages we will re-evaluate our decisions as delivery progresses. For example, if pre-construction planning indicates a material cost increase in an asset solution, we will re-evaluate the decision based on the new cost data and change the solution if it is more efficient to do so. Due to the nature of asset-based work it is possible that outturn costs may change during project delivery, so we will require that such works are undertaken on a fixed cost basis with shareholders, not customers, bearing the variation risk. This will ensure flexible and asset solutions are equitably compared.

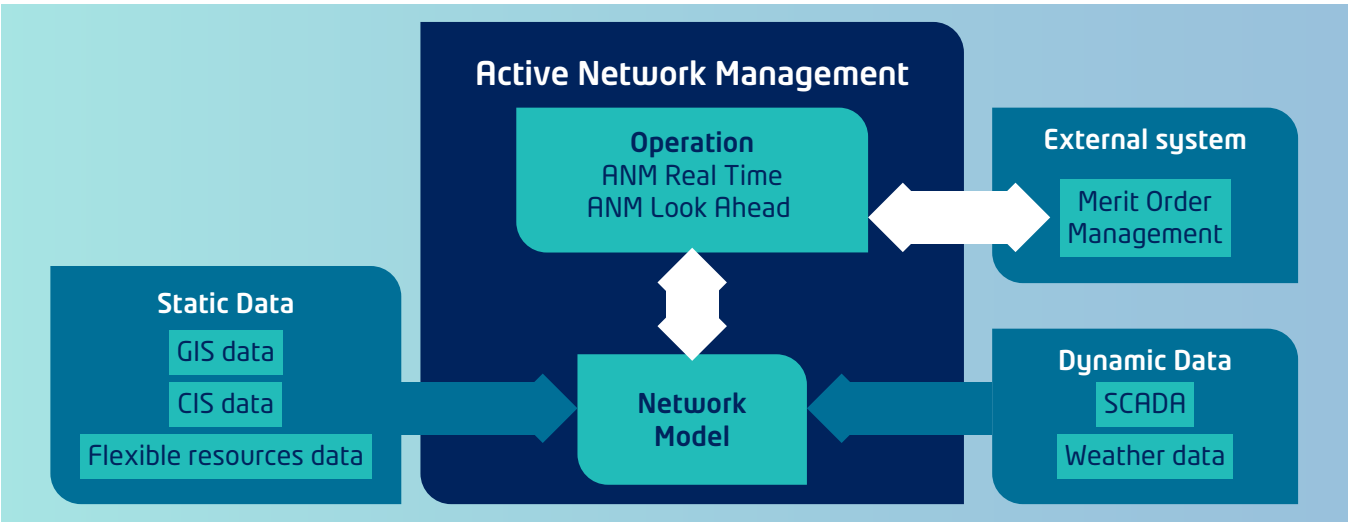
Transparent decision-making: Being transparent with our DSO decision-making is critical to ensuring our customers and stakeholders are confident that we are efficiently delivering capacity to meet their needs.

In ED1 we started publishing all the information and supporting models used to arrive at our capacity-related decisions in simple and easy to understand language, as our stakeholders had previously told us that we should simplify our materials to support understanding and aid their ability to have informed decisions.

To further improve transparency in ED2 we will introduce two additional measures to allow our customers and stakeholders to challenge our proposed decisions:

- After a decision is made and before entering into contract with the successful tenderer(s) we will introduce a 10-day standstill period. This will allow a period for scrutiny and challenge of our proposed decision.
- We will introduce a ‘decisions review’ process, to ensure that any decisions that are challenged are independently reviewed by our DSO Stakeholder Panel.

Figure 21: Our Active Network Management system



4.1.8 Real time network management

Our customers have told us consistently that they want us to improve the resilience of power supplies, enable a Net Zero carbon future and keep bills low. The key to delivering more from existing networks and meeting this challenge is to implement the latest real time network management tools, such as Active Network Management (ANM), which uses new flexible resources such as storage and flexible demand to meet capacity needs.

Active Network Management (ANM): In ED1 we implemented a new Network Management System (NMS) and ANM system, both developed by Schneider Electric. The ANM system is made up of two core components. The first component is the system which carries out network modelling activities in real time to manage network constraints using flexible network assets, flexible connections, and flexibility services; the second component is a Merit Order Management (MOM) system.

The MOM system holds the contractual data for all flexible connections, and flexible services which ANM uses to control network power flows. ANM directly integrates with NMS and holds real time data for the network topology, running arrangements, metering data, and other system monitoring devices. The MOM system has been developed as a separate, standalone system so that it is ring fenced from other DNO activities.

The MOM system determines the order in which flexible resources are to be dispatched in real time to ensure our network operates within its capability; for example, a network constraint. In ED2 we will further develop the MOM solution to facilitate secondary trading of distribution flexibility services, including trading of curtailment liability by linking it to platform-based marketplace services. In addition, we will determine if the MOM system could be more efficiently or equitably managed by a third-party.

Impact of Minded to Position for Access and Forward-Looking Charges Significant Code Review: We expect to amend the range of flexible connection types in the coming years due to the changes expected from the SCR. In general, we expect that from 1 April 2023 we will see most demand and generation customers opting for a firm connection with a minority opting for flexible connection arrangements either on a permanent or temporary basis.

We expect to see that some customers will happily continue on a flexible connection arrangement as they avoid reinforcement charges and they can operate satisfactorily within these arrangements or we will offer flexible connection arrangements for a transitory period whilst the network capacity is provided either through network development or procurement of flexibility services, guided by a costs and benefits analysis to determine the most efficient long-term solution. This transitory requirement enables a quicker connection to the network, avoiding delays.

Resolving ESO/DSO conflicts: The potential conflicts between the needs of the ESO and DSO remain one of the most important and challenging areas to resolve despite the work of the Open Networks Project.

By the end of ED1 we will publish our rules, after consultation, for generating the merit order for flexibility services to be utilised (ie the curtailment stack/list) and how each network user will be able to access the information on all network constraints. Customers who have accepted a flexible connection already receive information on the usage of their flexibility, via the curtailment index methodology. In ED2 we will ensure they have visibility of all network constraints that affect them including visibility of the respective flexibility merit orders.

Sharing of this merit order information with each flexible connectee will help them identify their curtailment risk in advance, so that they can evaluate the impact on other contractual obligations, e.g. provision of flexibility to other parties such as the ESO or Suppliers. By introducing bilateral trading, it will allow them the potential to trade away their curtailment liability with others in the stack, or trade to accept additional curtailment risk in return for financial reward.

We expect only a few trades initially and so we will facilitate these trades ourselves through a broker-type service, acting as a neutral market facilitator, i.e. a user will ask us to find a willing trading party. In ED2 we will move to a platform-based marketplace to facilitate direct bilateral trading of curtailment risk, which will reduce the friction of trading curtailment and any associated transaction costs. Our customers and stakeholders told us that these measures are essential to improving flexibility market liquidity and delivering optimum whole system benefits.

We believe that when presented with their curtailment risk information our customers will make rational economic decisions considering their curtailment liabilities and obligations in the energy and ancillary services markets.

On the basis that the ESO and other network licensees would benefit from having our curtailment information we will, on request, provide them access to the real-time data, via Inter Control Centre Protocols (ICCP) where appropriate, with a sufficient level of granularity to allow them to cross reference against their own service provisions i.e. MPAN/MSID. In sharing data at this granularity, the other relevant licensees can satisfy themselves that coordinated conflict management or primacy rules are not necessary, and distributed energy resources will be able to stack revenues for their flexibility services, which industry parties like community and local energy groups consistently tell us is important for their financial success.

More information on our proposed DSO performance measures is provided in our DSO Transition Plan (Annex 2).

4.1.9 Flexibility and energy efficiency

In ED1 we made a commitment to flexibility first and we are reaffirming that commitment and extending it to include energy efficiency. They are complementary and their combined impact will be beneficial to the network and save money for our customers.

To enable this we expect to have 100% network visibility through the tactical installation of network monitoring on HV and LV circuits and aggregated consumption data from smart meters, and we will publish heatmaps for HV by the end of ED1 and for LV by 2025.

Flexibility first: Our ongoing commitment is to use flexibility as our first response. In ED1 we have helped create, through the Open Networks Project, the common products and processes for signposting, tendering (including pre-qualification and contracts), evaluating and purchasing flexibility including its dispatch, baselining and settlement as well as coordination rules. This collaborative work will continue in ED2 ensuring that we are using flexibility where it is the most efficient whole life cost and we will have transparent, robust methodologies and processes with independent oversight that show the efficient use of flexibility.

In winter 2020 we published our expected ED2 requirements for flexibility services and sought feedback from interested parties in the form of an Expression of Interest (EoI). This provided the market with indications of our future needs and volumes; whereas the EoI responses allowed us to understand the market's preferences and intentions in terms of capacity and likely forward prices in specific locations.

As we start to receive and process data from smart meters and LV monitoring equipment in ED1 we will be able to develop LV heatmaps that show the hosting capacity and constraints in our LV networks. This means a step change in our ability to signpost and seek solutions for current and future constraints on our LV network.

In ED2, to ensure our customers receive the most efficient DSO service, we will tender for the provision of all market operation services. We will invite third parties to tender to run our flexibility auctions, procure flexibility services on our behalf, facilitate the secondary trading of curtailment risk and other DSO distribution flexibility services.

To further promote competition for platform-based marketplace services in ED2, we will regularly re-tender for the services. This will include seeking fixed cost provision, rather than percentage of flexibility purchased, and being open to non-standard tenders to help develop alternative routes to flexibility services providers. All the above decisions will be overseen by our DSO Stakeholder Panel.

General approach to promoting energy efficiency: Adopting energy efficiency measures saves customers money regardless of geographical boundaries, financial barriers and vulnerabilities and is essential to achieve Net Zero. Energy efficiency has a positive impact on the network, as average consumption is reduced and/or shifted away from the peak demand creating network capacity, so it is a win-win for both our customers and Electricity North West.

In ED2 we will continue to promote energy efficiency widely to deliver sustained energy savings for customers that go beyond our ED2 business plan. We have also seen that through engaging with energy efficiency programmes, this can be the catalyst to wider systemic changes. For example, in thinking about the amount of energy somebody uses within their home this may lead to them thinking about changing their energy tariff, installing solar panels, buying an electric vehicle, changing their diet to a less carbon intensive equivalent, etc. and sharing the message with others. We will target specific groups and there is further information on how we will do this within several sections of our ED2 Business Plan:

- our Electricity users in vulnerable circumstances support (Annex 8) provides information on how we will support electricity users in vulnerable circumstance and help those in fuel poverty,
- our Community and Local Energy strategy provides information on how we support these groups to help their members and communities with energy efficiency,
- our Leading the North West to Net Zero carbon plan provides details on how we will provide advice for businesses to reduce their carbon footprint on their journey to Net Zero and is detailed in section 4.5.1,
- promote installation of smart meters and customers understanding their overall energy consumption and times of use, and
- provide greater level of easy to understand information on the use of the network so that customers make economically rational decisions through advice and demand side management.

Purchasing energy efficiency instead of network assets: Our goal in ED2 is to work in partnership with others to deliver three targeted energy efficiency programmes within defined geographic boundaries to reduce network utilisation instead of reinforcing the network.

We propose the following deliverables for market development:

- efficient, user-friendly and accurate processes, contracting and procurement,
- delivering stakeholder engagement and sharing market information, and
- managing conflicts of interest and open governance.

4.1.10 Helping our customers take action on Net Zero

As part of our DSO plans, we aim to help our customers to take action on Net Zero, in line with the ambitions of the UK Government and local commitments across the region. These include Greater Manchester Combined Authority's commitment to Net Zero by 2038, Cumbria County Council's Net Zero by 2037 goal, and Lancashire County Council's commitment to Net Zero by 2030.

Alongside ensuring that the network has the capacity the region needs, proactively helping our customers to take action is another key role. It is a role our customers have identified and asked us to deliver and it recognises our position as an expert in energy and low carbon technologies, and the trust our customers have that we will provide them with honest and impartial advice to ensure that they can benefit from the Net Zero transition.

By getting customers on board with Net Zero, in particular energy efficiency, we will realise network benefits.

Our approach is focused on three customer groups:

- Domestic customers
- Business customers
- Community and local energy groups

We will work with each of them to lead by example, engage and support them to take action.

4.1.10.1 Domestic customers

There are 2.2 million domestic properties within the region and within this there are 1.1 million that are eligible to be included on our Priority Services Register (PSR). The blueprint of domestic customer engagement for the adoption of energy efficiency measures and adoption of low carbon technologies (LCTs) is included within our Electricity users in vulnerable circumstances strategy (Annex 8).

The strategy has a clear focus on not leaving anyone behind and the research and learning that we'll carry out through customer focus groups and the vulnerability engagement fund will increase accessibility of the support and information we can provide for all customers across the region.

Ensuring that customers can access information, raising awareness, educating communities and helping electricity users make a change is important to support our goal of 2038. By helping customers understand the changes in the energy transition and the opportunities that are available to them, together 2.2 million homes can make a difference.

Inspiring customers

The research we have carried out so far shows a diverse range of perceptions and views on the Net Zero agenda. This is particularly the case for those trying to understand how their individual actions can make a significant impact in reducing national and international CO_2 emissions.

To inspire the North West, we need to make the message personal to the people whether that be about their home, their health, their children's future or the local community. We can also help our customers to understand how, taken together, the actions of 2.2 million customers will make a significant impact, particularly when further supported by government and local businesses. By being positive we can look after ourselves better with benefits of keeping our bills low and helping the planet.

Actions to inspire

- Deliver awareness campaigns under a variety of headings as above and make it clear how customers can benefit as well as support the Net Zero challenge
- Make it about people – share through forums such as social media stories of people who have made the change and why
- Continue to grow and deliver awareness programmes for future electricity users such so they are ready for their first home, e.g.
  - Girl Guides energy efficiency badge
  - Inspire Youth Group using Tik Tok videos
  - Continued engagement with Youth Focus North West
- Utilise the power of the community, by showing the impact of the many and working with housing associations

Engaging customers

During 2021 we began a programme of learning alongside One Manchester Housing Association to work with three different communities to understand how we can increase engagement and help customers become aware of how to make changes to their energy usage. This research is the platform for ongoing work within ED2 where we can learn how to inspire customers to engage, understand and make changes. It is essential that the engagement strategy focuses on the outcomes for the customer, creates customer segmentation for messages, keeps it simple and listens to what customers say.

Actions as a result of this learning include:

- Promoting services from one trusted partner to another, reducing effort for customers
- Promotion of literature and facts through all communication channels included but not limited to social, contact centre agents, website and printed literature
- Customer insight research including the vulnerability engagement fund, and segmented customer focus groups to continually remove barriers to engagement
- Promote the priority services register using whole system thinking with our colleagues from our North West partnership Utilities Together (including water, gas and electricity)

Supporting customers

We have two clear paths for supporting customers on this journey, the first area is to ensure our network is not a blocker for customers to connect LCTs and the second is to make sure customers who want to make changes can access the right support, at the right time in the right location.

Working together with a trusted network of partners and stakeholders including the Utilities Together forum we maximise each touch point to educate and provide customers with access to funded support or make it simple for them to connect.

Actions to support include:

- Funding trusted local partners to be available to provide support with energy efficiency and accessing of grants to support LCT adoption
- Contact centre agents trained with helpful advice, with the capability to refer on to the right partners
- Fast and simple connect and notify process
- Network enhancements at zero cost to customers for standard domestic connections
- Communication channels kept up to date with information and advice
- Local community meetings to educate groups of the benefits they can access and get communities talking

4.1.10.2 Business customers

There are 200,000 business customers across the North West, from large manufacturers and professional services companies to micro businesses, all of which are a key part of the region's economy. We want to help all of them take action on Net Zero, with a focus on increasing efficiency, which will provide extra capacity on the network.

We also want as many businesses as possible to engage with our DSO model and be open to flexibility, which again will create capacity. If we are to make the most of our flexible first approach we need these businesses to be engaged and providing flexible services for us to purchase.

We'll engage businesses through a combination of direct support, wider engagement and awareness raising, through to signposting to the support available from our partners.

Leading by example

We will lead by example – as our customers and stakeholders told us to do – so that others can see how they can also take action. This work will be underpinned by our membership of the UN's Race to Zero which we joined in July 2021 and the Science-based Targets initiative which we joined in July 2021.

Further details on the actions we'll take and the goals we'll achieve are provided in the Becoming Net Zero section of our Environmental Action Plan (Annex 13).

Leadership actions:

1. We will become an exemplar Net Zero organisation and use our lessons learned and case studies to inspire other businesses as part of our business engagement work.
2. We will promote the work of our partners where they have projects we can use to further inspire businesses to take action, using our platform as the region's DNO.

Engaging businesses

Our business engagement work will achieve three objectives:

- **What** – helping businesses understand what actions they need to deliver
- **Why** – helping businesses understand why these actions are relevant to them and the benefits they can expect to achieve
- **How** – helping businesses understand how to develop and deliver action, including the support available from Electricity North West and our partners

Actions to engage businesses:

1. **Go Net Zero website** – continue to develop our website to provide information, advice, guidance, case studies and lessons learned from our carbon reduction activities and those of our partners.
2. **Events** – deliver an ongoing programme of engagement events.
3. **One-to-one meetings** with businesses.
4. **Understanding progress, barriers and support needs** – ensure we understand the latest progress by businesses, the barriers to further action, and the help they need from us and our partners to remove them.

Supporting businesses

We know from our work to develop this plan that, once engaged, our business customers need help to translate their ideas into deliverable projects. We have expertise on a range of low carbon technologies, particularly energy efficiency, electric vehicles and renewable energy generation. We also have relationships with a number of key partners who can provide wider support on topics such as setting carbon reduction targets, developing an action plan, travel planning, reporting progress, and others.

Actions to support businesses:

1. Support team – establish a dedicated support team to help businesses develop low carbon technology projects and secure their connections to the network.
2. Partnerships – signpost businesses to trusted local business support initiatives in Cumbria, Lancashire and Greater Manchester, and to national initiatives, including the UK Zero Carbon Business Partnership, to provide support on topics outside our areas of expertise.

4.1.10.3 Community and local energy groups

Our vision for engaging with and supporting community and local energy customers and stakeholders in ED2 is:

To continue with our dedicated service to maintain an in-depth understanding of the issues and barriers facing the sector; and to continue to use this intelligence to develop and shape our services. This will ensure we are meeting our customers' and stakeholders' expectations when Electricity North West supports them with their journey towards Net Zero.

Specifically, we will deliver:

1. A clear strategy with an action plan that illustrates how we are responding to stakeholder needs so they are able to hold us to account.
2. A dedicated resource, newsletters, regulation and policy updates, web resources, and engagement events to facilitate ongoing engagement.
3. An enhanced 'Powering our Communities fund' to the value of £1.95m for ED2.
4. A new £1m delayed payment scheme for connections of community owned low carbon technology.

This service will deliver benefits to individual and group schemes as well as the whole customer base, including but not limited to:

- Carbon savings
- Adoption/installation of LCTs
- Reduction in fuel poverty
- Green jobs
- Local economic benefits
- Capacity building and skills development within communities to enable them to take part in the energy systems transition
- Supporting a just transition by engaging communities and groups of customers who might otherwise get left behind

The total cost of delivering this service in ED2 will be £3.2m and will involve an additional member of staff being recruited for the Community Energy Team, amounting to two dedicated posts for this service, with wider support from across the business.

This will ensure that we provide an appropriate level of service for the region's community and local energy groups, and also provides an additional mechanism to engage hard-to-reach groups such as vulnerable customers in fuel poverty.

The proposals outlined here form a specific strand of our customer and stakeholder engagement on Net Zero. As well as helping groups to take practical action themselves, we'll also ensure their views inform the work we do to ensure our network is fit for a Net Zero future.

For further details please refer to Annex 5 – Community and Local Energy Support.

4.1.10.4 Cross-cutting actions

As well as the audience-specific activities, we will deliver additional cross-cutting activities to help our customers to take action on Net Zero. You can see more on each of these actions in our DSO transition plan – Annex 2.

Actions:

1. Local area energy plans – continue to work with our local government partners to support the development of local area energy plans, climate change action plans, and other similar plans to make rapid progress towards Net Zero.
2. Forecasting and planning – ensure our forecasts and plans take into account and are aligned with the latest Net Zero plans and commitments of our local government partners.
3. Decarbonisation pathways – update our decarbonisation pathways in partnership with Cadent every two years throughout ED2 to make sure they include the latest forecasts and technology developments and provide the certainty our partners have told us they need to make their investments.

4.2 Whole systems

During ED1, we have been working closely with key stakeholders to help them develop new economic plans in which decarbonisation has a central role.

As mentioned previously, we have already worked with Cadent Gas to develop three regional energy masterplans – providing near to mid-term certainties around the future of energy supply and demand.

The plans have a crucial role in providing certainty for stakeholders, allowing them to act in areas such as transport policy, regional renewable generation and heat.

The documents underpin regional government energy action plans and have already been launched with key regional stakeholders, such as Greater Manchester Combined Authority.

Alongside these plans, our Leading the North West to Net Zero plan, published in 2019, articulates how we will lead and encourage businesses, our customers and our colleagues on the decarbonisation journey.

In ED2 we will build on this work with other utilities to develop plans together that benefit the whole region. We are committed to developing these pathways every two years, and sharing them with stakeholders as part of their work on Local Area Action Plans.

Our Innovation Strategy in ED2 will adopt a holistic 'whole system' approach to consider the widest application of our innovation and maximise benefits to customers. One of the five 'themes' we are adopting to provide strategic direction to our innovation plans includes the 'whole energy system'. As a key theme this seeks to enable joined-up and efficient approaches across the wider energy system to identify solutions for planning, forecasting, design, construction, operation, maintenance and data.

The joint Ofgem/BEIS Smart Systems and Flexibility plan recognises that our electricity system is undergoing fundamental change. As the system changes and technologies evolve, there are greater opportunities arising for companies to collaborate to generate optimal whole system outcomes.

To perform our role as a DNO effectively and to ensure an efficient, coordinated and economical system, interactions between local electricity distribution networks and national electricity transmission networks are already an integral part of our way of working, and there are established processes in place to facilitate the flow of information and system planning. For ED2 we have worked with National Grid to develop our programme at shared sites and we have asked them to review our Engineering Justification Papers (EJPs) for these sites.

The work that has been undertaken to date, and continues via the Open Networks Project, has identified further improvements and developments that can be made to system coordination and collaboration to provide increased consumer benefits.

We have collaborated with other DNOs via the Open Networks Project to deliver a Whole System Cost Benefit Analysis methodology and model to support our collective approach to whole systems solutions.

Collaboration across the sector will be critical to delivering these important changes for customers and we remain committed to our leadership and active support

of the various Energy Networks Association (ENA) groups addressing these issues. The output from the Open Networks Project has demonstrated the importance and benefit of this collaboration; we will continue to be an integral part of the project as it develops.

Further details of our Whole Systems approach can be found in Annex 6.

4.2.1 Whole system outcomes

A whole system focus is required to avoid piecemeal interventions on single energy vectors. Beyond the energy system, the decarbonisation of transport is the next critical vector to tackle in a whole system journey to Net Zero. We have used our position at the heart of the energy and Net Zero landscape to bring stakeholders together to think about whole system in mutually supportive ways.

Whole energy and heat system

As government policy on heat becomes clearer during ED2 our engagement with the respective gas networks in our region becomes ever more critical. We have displayed thought leadership in our collaboration with Cadent to develop pathways to decarbonisation across our region. This work helps with RIIO-2 planning and helps local authorities and businesses grappling national and more local targets and ambitions.

In ED2 we will strengthen our engagement with local government, key regional stakeholder bodies and all parties involved in the energy supply chain with more systematic processes for data exchange and joint planning.

Whole transport system

The appointment of dedicated planning engineers for whole transport systems has enhanced the integration of our whole system planning for transport infrastructure. Our engagement with Transport for the North (TfN) focuses upon the provision of electrical infrastructure for the decarbonisation of transport within our area. The whole system approach to our work with TfN means that in ED2 we will support all needs for network capacity to supply electricity to all transport modes.

Whole customer service system

We do not see whole system as limited to network-related initiatives, and there are examples of what we consider ‘whole system’ throughout other aspects of our business plan such as a wide application priority service register or the provision of advice to business customers on decarbonisation.

The smart street customer value proposition supports customers by lowering bills, reducing energy demand and enabling low carbon technology deployment.

Earlier in ED1 we formed the Utilities Together partnership with Northern Gas Network, United Utilities and Cadent Gas and through multiple joint projects we have deepened our collaboration. We use embedded ‘behind the scenes’ processes that ensure customers only have to register once with any partner to receive a wide range of support benefits from us all. Every new activity we explore is now considered as to whether it is for us only, or mutual via Utilities Together, we will continue this approach in ED2.

4.3 Meeting the needs of customers and network users

As detailed in our track record in section 10, our customer satisfaction scores are already high, but customers have told us of a few areas where we can improve, such as customer services and supporting those in vulnerable circumstances.

4.3.1 Meeting customers' needs

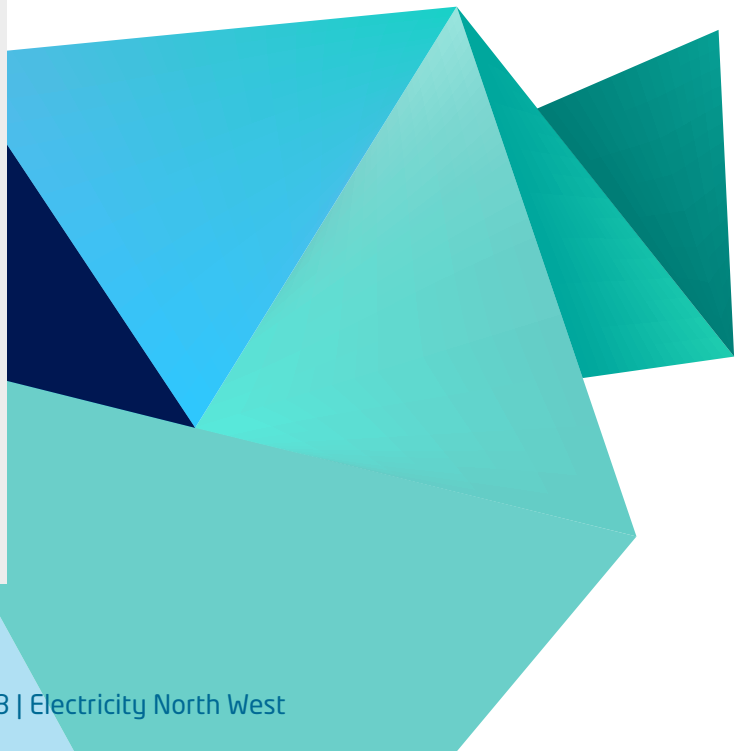
Example customer and stakeholder input to this priority area:

- Our Plugged In Public Panel has emphasised to us our role as a service provider and therefore that meeting customer needs is a central function of our work.
- During the qualitative stage of our initial priorities research customers told us that customer service was important as they needed to be informed of power cuts and whether Electricity North West are doing any work in their area.
- In a joint 2019 DNO willingness to pay study, the highest valued initiative tested (out of 18 tested) was, 'during power cuts increase proactive contact with customers so that over 60% of all customer contact is through proactive methods'.
- Our innovation project, Avatar on The Future of Customer Service also indicated that traditional communication channels such as telephone and IVR are very likely to compete in the future with AI based solutions and other innovative platforms such as Crowd Service.
- During a playback session in December 2020 members of Youth Focus North West told us "Meeting our customer needs" should be a high priority given that, as a monopoly, Electricity North West is customers' only option.

In this section, we set out the detail behind each of our proposed deliverables, including a description of the planned outcome and the target date. We also include a view of the level of incremental cost above current levels and also how we propose to measure our successful delivery. This uses the categorisation Ofgem have set out for RIIO-ED2 Outputs which is set out in more detail in section 8 but briefly comprises;

- LO – Licence Obligations;
- Common PCDs – Price Control Deliverables that are set across all DNOs;
- Bespoke PCDs – Price Control Deliverables unique to us;
- ODI-Fs – Financially incentivised Output Delivery Incentives; and
- ODI-Rs – Reputationally incentivised Output Delivery Incentives

In many cases the detail of the design of these schemes will be discussed with Ofgem and the other DNOs through 2022.



Benefit 1: Making it even easier for customers to contact us

Customers can currently contact us via phone, our website, social media, email and post. Customers have told us that they want new ways to contact us, but that because of the urgency of some contacts, and so as not to disadvantage any customers, we must focus on taking phone calls.

We will set a realistic target to improve our customer satisfaction for ease of contact to nine out of 10.

In ED1 we launched additional ways for customers to get in touch such as our automated chatbot. We also use multiple languages and work with external agencies to provide translation services. We will continue this work in ED2 to continuously improve our offer to customers.

The advantages of this approach mean that people can contact us when it suits them, rather than waiting for specific working hours of certain teams. It also frees up the phones for people who don't easily have another option.

Outcome description	Two new communication channels: Chat Bots and Self Service Facilities
Current performance level	Five existing channels
Incremental cost of proposal	£0.5m
Target delivery date	31 March 2024
How will we measure success?	We will report on our progress on this through an ODI-R

Benefit 2: Providing additional support to businesses during power cuts

Businesses can sometimes take a financial and even a reputational hit due to the impact of power cuts. It can also be more disruptive without the latest information to help make decisions on whether to continue or send people home for the day.

To give businesses additional support during power outages (either planned or unplanned) we will continue our innovative Business Priority Services Register – similar to the PSR for our domestic customers.

Businesses signing up to this free service will receive a range of support, such as 30 days' notice of any planned power cuts. We'll also offer advice on how they can obtain generators, and we'll proactively contact them during unplanned power cuts to keep them up to date and help them plan.

Outcome description	Operate a Priority Services Register for Business Customers
Current performance level	Trialled in ED1
Incremental cost of proposal	£0.2m
Target delivery date	1 April 2023
How will we measure success?	We will report on this through an ODI-R based on feedback from businesses

Benefit 3: Improving the speed and quality of our responses to customers

In 20/21 we were pleased to achieve 90.6%overall customer satisfaction, and we aim to maintain this level through RIIO-ED2, despite the likely significant increase in customer contacts and rising expectations.

We receive around 400,000 telephone calls from customers each year and this continues to grow. We will increase the size of our customer team to answer enquiries more quickly.

This will also support resolving a minimum of 80% of complaints made within 24 hours. Where we receive complaints we do root-cause analysis to drive how we prevent complaints or improve the process, and we will continue this during ED2.

One of our roles is to connect new domestic or commercial properties to our electricity network, or change the location or size of existing services, so that customers get the power they need.

Customers will benefit from an easier connections process which is responsive to their needs, from initial application through to works being completed.

We will achieve this by being responsive to customer feedback, including the development of digital technology and an improved website to make it easier for customers to track their project.

Outcome description	9/10 customer service
Current performance level	Peak of 90.6% overall customer satisfation in 20-21
Incremental cost of proposal	£0.3m
Target delivery date	31 March 2024
How will we measure success?	Through achieving >90% against Ofgem's CSAT (Customer Satisfaction) measure

Benefit 4: Providing faster quotes and faster completion for new connections

We will beat Ofgem's standard for the time it takes us to quote and connect new connections customers. We will also increase customer satisfaction to nine out of 10 through continuous improvement looking at the processes and systems we use to streamline and develop improvements.

Outcome description	Exceed Ofgem targets
Current performance level	Exceed Ofgem targets
Incremental cost of proposal	£2m
Target delivery date	31 March 2024
How will we measure success?	Through beating the targets set for us by Ofgem in terms of average days to quote and days to connect through an ODI-F

In 20/21 we were pleased to achieve a peak of 90.6% overall customer satisfaction and we aim to maintain this level through RIIO-ED2, despite the likely signficant increase in customer contacts and rising expectations.

Benefit 5: Reducing the time it takes to complete emergency roadworks

Emergency roadworks are required if our underground cables are damaged. Roadworks can cause disruption to local communities and commuters through extended travel time, loss of trade to businesses, noise and air pollution.

Local authorities have asked that utility companies work collaboratively to identify opportunities for delivering roadworks in a more coordinated manner, in order to minimise congestion. Our customers were also supportive for reducing the time to complete roadworks. In response, we will work more flexibly in ED2 to reduce the average time taken to finish emergency repairs in the highway or pavement from five days down to an average of three days.

This will be measured from the time of repairs commencing to the site being tidied up and restored to its previous condition.

We are not asking for additional allowances to deliver this improvement but have set out a proposed new incentive mechanism that would only pay out if we successfully achieve it (and penalise us if we don't). Further details of this proposed new approach can be found in Annex 7.

Outcome description	Faster reinstatement after emergency streetworks
Current performance level	5 days
Incremental cost of proposal	No additional allowances, but incentive rewards if improvement delivered successfully
Target delivery date	31 March 2026
How will we measure success?	Through beating the target set in our proposed ODI-F

Benefit 6: Increasing community-focused approaches to engagement

We will introduce a more local community-focused approach to engagement and communications about work and services in our region. We will recruit and train a specialist team to work with local communities to engage about Electricity North West's current and future activities in local areas.

A recent example of this is engagement with a community in Golborne, Greater Manchester, which had suffered multiple power cuts in a short period of time. Community feedback resulted in us planning, scheduling and carrying out repairs in Golborne within two weeks.

We wrote to 2,000 customers to keep them informed, engaged with the local MP and arranged for an online Q&A with customers on Facebook. Customers will gain more tailored information and support over key issues that are affecting them through this approach.

Outcome description	Community engagement team improving access to information on network issues
Current performance level	Successful trials
Incremental cost of proposal	This forms part of our overall customer experience proposals
Target delivery date	31 March 2024
How will we measure success?	We will report on our progress through an ODI-R based on feedback from community groups

4.3.2 Supporting electricity users in vulnerable circumstances

There are a number of key drivers that shape our thinking on vulnerability including customers on our Priority Services Register (PSR); those who tell us they need a lot more support; circumstances that can make anyone vulnerable such as fuel poverty, bad weather, loss of electricity; and community needs affected by wider social impacts – such as those we have seen through 2020 highlighted by the COVID-19 pandemic.

Many of the wider factors that create vulnerability are addressed by a range of organisations, but our customer and stakeholders tell us that we have a role to play in helping to simplify access to support and provide support.

Input from customers and stakeholders in this area highlighted the importance of designing services with inclusion in mind.

More information is included in our dedicated Electricity Users in Vulnerable Circumstances Strategy which can be found at Annex 8. The strategy has been amended several times in response to thorough challenges from our CEG.

Example customer and stakeholder input to this priority area:

- Our online community told us that our Priority Services Register is an essential service to certain people who may be in vulnerable circumstances and we should continue to promote it.
- Our Plugged In Public Panel told us that they thought power cuts would affect customers in vulnerable circumstances more severely, as they could be reliant on electricity for their immediate health, such as in-home medical equipment refrigerating medicines, so we need to effectively prepare for and mitigate predictable circumstances.
- Our Plugged In Public Panel told us that there are many difficulties faced by people in vulnerable circumstances and that tackling these should be central to all our considerations. The panel also stressed the importance of a reliable electricity supply to support the health and wellbeing of customers in vulnerable circumstances.
- Our Plugged In Public Panel also raised concerns about the expected rise in levels of fuel poverty in the current economic crisis and the need for Electricity North West to support those customers.
- At one of our Powering Up Recovery events Citizens Advice told us that they think COVID-19 is not only going to affect people's ongoing ability to live daily lives well into the future, but it will also affect their ability to invest in their homes and Net Zero – for things like electric vehicles and making that switch because they can be expensive.

Benefit 7: Collaborating more closely with other utilities

We will collaborate more closely with other utility providers (e.g. water and gas) in the North West to provide improved services to customers in vulnerable circumstances.

To achieve this we will jointly fund new research projects and partnerships that improve support services, share awareness campaigns (e.g. safety) and share data to keep our Priority Services Register as up to date as possible.

This joined-up-approach is more efficient because it prevents the need for utility providers to always communicate separately with customers.

A recent example is a new collaboration between Age Concern, Electricity North West, United Utilities and Cadent Gas alongside Preston North End Community and Education Trust, in a joint effort to reach and support older people in Lancashire.

Customers will benefit from a more efficient and cost effective service with improved support for customers in vulnerable circumstances across the North West.

Outcome description	Enhanced coordination with utility providers to support customers in vulnerable circumstances
Current performance level	Utilities Together forum with Cadent and United Utilities
Incremental cost of proposal	£1m
Target delivery date	31 March 2024
How will we measure success?	We propose that this forms part of Ofgem's Vulnerability Scorecard ODI-F

Benefit 8: Doubling investment in referral networks

We will double our investment into referral networks to £500k per year to enable trusted partner organisations to provide customers in vulnerable circumstances with the support they need.

Funded partnerships allow us to refer customers in vulnerable circumstances to organisations (e.g. Citizens Advice) that are trusted by local communities and provide extra support.

This can include energy efficiency advice, free first-time central heating, grants to insulate or upgrade a customer's heating system and volunteers making regular contact with lonely or isolated people.

Customers will benefit from health and wellbeing benefits associated with connecting customers to support services when they need them most.

Outcome description	£500k per annum invested in referral networks
Current performance level	£250k per annum
Incremental cost of proposal	£1.3m
Target delivery date	31 March 2024
How will we measure success?	We will report our progress in terms of the value of funds disbursed and benefits generated through an ODI-R

Customers will benefit from health and wellbeing benefits associated with connecting customers to support services when they need them most.

Benefit 9: Expanding the reach of our Priority Services Register

We currently have almost 1m people registered on our free Priority Services Register (PSR) for customers in vulnerable circumstances, out of five million people in our region. This is around 50% of all those eligible.

We will increase membership of the PSR to a minimum of 60% of those eligible for registration, targeting areas of the North West that have the greatest number of customers in vulnerable circumstances.

The PSR is a free support service to customers who need extra help during a power cut, either over the phone or face-to-face. We will continue to develop and expand our PSR and the services we offer to those on it including support available during power cuts.

We will enhance the service provided to members through making contact more frequently to check everything is okay, arranging visits from Customer Welfare Officers for those who need extra help, providing tips to prepare and stay safe during power cuts and developing new support services.

Customers will benefit from increased resilience and health and wellbeing benefits associated with reducing the stress and anxiety that can be caused by a loss of power.

Outcome description	Minimum 60% of eligible customers on the Priority Services Register
Current performance level	50% of eligible customers on the Priority Services Register
Incremental cost of proposal	£5.1m
Target delivery date	31 March 2028
How will we measure success?	We will report our progress against the 60% registration target through an ODI-R

Benefit 10: Creating an innovation fund to ensure no one is left behind

One of the risks of a rapid path to decarbonisation is that customers with lower incomes and fewer opportunities will get left behind, as more affluent customers take up new technologies and reap the benefits. This could widen social and economic gaps further, creating an even more unequal society.

To help prevent this imbalance, we will introduce a new £250,000 annual fund to work with expert partners to develop new solutions to address barriers to the take-up of low carbon technologies.

Key barriers to these technologies include their cost and the need for greater education and support to understand them.

This fund is a specific new idea brought by one of our stakeholders as a suggestion on how we could increase engagement and communication with key groups. We are looking for new developments to trial and learn from. The investment level will support our learning and if we find something that works and want to develop further, we would make a business case to develop it.

The annual fund will drive innovative solutions to ensure that everyone, including the most vulnerable, can benefit from a future energy system that is both smart and fair and ensures that no customer gets left behind.

Outcome description	Establish Vulnerability Fund to remove barriers to LCT uptake
Current performance level	n/a
Incremental cost of proposal	£1.3m
Target delivery date	30 September 2023
How will we measure success?	We will report on the value of funding disbursed and the level of benefits generated through an ODI-R

Benefit 11: Supporting customers in fuel poverty

We will work more closely with trusted organisations to understand fuel poverty and deliver support services, investing £2m per year to support 250,000 fuel poor customers by 2028.

In the North West 12.1% of households (approx. 250,000 customers) are in fuel poverty, which is when people cannot afford to keep adequately warm at a reasonable cost, given their income.

These households are in more vulnerable circumstances than most when power cuts occur, because they don't have surplus income to cope during the power cut (for example getting a hot meal).

Working alongside local agencies we will provide a more integrated range of support services investing £2m per year to reach all 250,000 fuel poor customers by 2028. This is a quadrupling of our investment from ED1.

Energy efficiency advice, grants and debt management support will help recipients financially, but also build their confidence and knowledge. Wellbeing and other health challenges will also be supported through a referral scheme which will make it easier for customers to get the help they need.

Outcome description	250,000 customers in fuel poverty supported
Current performance level	n/a
Incremental cost of proposal	Total fund of £10m
Target delivery date	31 March 2028
How will we measure success?	We will report on the value of funding disbursed and the level of benefits generated through an ODI-R

Benefit 12: Developing new customer advisory panels

We will establish new representative customer advisory panels to include direct input to our plans from members of the public.

A customer advisory panel is a group of customers that come together to review our business plans and provide feedback on our performance.

In developing this ED2 business plan, we established a new deliberative customer panel which has proved hugely insightful and beneficial. We want to capitalise on this investment and learning and introduce a new customer advisory panel to provide ongoing feedback on our strategy to support customers in vulnerable circumstances.

To ensure the panel is representative it will include a diverse range of customers that truly reflects the wide range of people that live in the North West.

Part of the panel's remit will be to provide feedback on our plans for ensuring customers understand changes in the energy sector through videos, community sessions, education in schools and referral networks.

The outcome will be a strengthening of consumers' voices in business decision-making, influencing investment, future policy and customer benefits.

Outcome description	Vulnerable customer panel established
Current performance level	Panels established for ED2 engagement
Incremental cost of proposal	£2.5m
Target delivery date	30 September 2023
How will we measure success?	We will report on our progress through an ODI-R

Benefit 13: Home welfare visits for electricity users in vulnerable circumstances experiencing long-duration power cuts

We will continue to offer timed appointments to customers who are having work completed at their property, or to those who require a welfare visit but we proactively offer visits to customers on our Priority Services Register who are experiencing power cuts over 12 hours.

Connections and cut-out work which is predominantly in someone's house are always appointment based. Planned welfare visits are arranged through discussion with customers and have either a timed appointment or, if support on the way, timed expectations. Around 200 PSR customers experience power cuts over 12 hours each year.

Visits will be made by a Customer Welfare Officer to explain what is happening, provide reassurance and tailored support.

Outcome description	We'll proactively offer welfare visits to all electricity users in vulnerable circumstances who are without power for 12+ hours
Current performance level	Ad hoc visits
Incremental cost of proposal	<£100k
Target delivery date	30 September 2023
How will we measure success?	We will report on our progress through an ODI-R based on the number of visits offered

Benefit 14: Introducing all-colleague training for vulnerable circumstances and mental wellbeing

We will implement a broad, tiered and targeted training programme to ensure education and awareness of vulnerability is aligned to all staff roles and responsibilities, to recognise and reduce the impact of vulnerabilities. We will also introduce new all-staff training on new and emerging mental wellbeing, linking the impacts of changing circumstances (i.e power failures).

We embrace diversity and inclusion, enabling our colleagues to have a better understanding of these areas including where an individual's circumstances requires us to make additional considerations in our daily activities. We will amplify our current training structure to provide a regular training programme for all roles, to provide insight and awareness for colleagues to better support our customers. The training will cover circumstances such as digital exclusion, rural isolation and regional economic impact.

The outcome will be an enhanced service provided by our colleagues through better awareness and understanding of the impacts of vulnerability and ability to recognise and reduce impacts through our daily activities. The training will also continue to build our mental wellbeing strategy, empowering our colleagues to understand vulnerable circumstances that can affect everyone.

Outcome description	100% of colleagues trained in vulnerability and mental health
Current performance level	Training focused on contact centre colleagues
Incremental cost of proposal	£1.9m
Target delivery date	31 March 2028
How will we measure success?	We will report our progress against this through an ODI-R based on the proportion of colleagues trained

4.4 Maintaining a safe and resilient network

On average, an Electricity North West customer experiences a power cut around once every four years and is without electricity for around half an hour every year. This represents a reliability level of 99.995%, a performance which is amongst the best of all 14 electricity distributors in Great Britain.

We were the only electricity distribution network operator to commit to ensuring none of our customers would suffer a service that Ofgem would classify as 'worst served' by the end of the current business plan period in 2023. We are on track to deliver on this commitment and in 2019-20 only 268 of our customers were in this category. Despite Ofgem broadening the definition of a 'worst-served customer' we commit to maintaining our record and investing to ensure that we do not having any worst-served customers (by the new definition) by the end of 2028.

We also take our safety responsibilities to our colleagues and the public extremely seriously. This section also includes our forward plans for continuing to ensure the safety of our equipment and sites. Annex 9 covers our ED2 education and awareness strategy including our approach to public safety communications.

4.4.1 Delivering a reliable network

Example customer and stakeholder input to this priority area:

- As part of the qualitative stage of our initial priorities research "keeping your life running" was ranked as one of the top priorities by customers as electricity is so key to day-to-day life. We have more consensus on this area across all stakeholder groups than any other.
- Our Plugged In Public Panel stressed the importance of the service the we provide and how other activities we may carry out rely heavily on firstly delivering a reliable network. They also highlighted the significant negative impacts an unreliable network would have on customers' lives, particularly those in the most vulnerable circumstances.
- Our online community told us that "delivering a reliable network" was even more important now due to COVID-19. Members told us that COVID-19 had made them think more about how much they rely on electricity, for example working from home.
- Our Plugged In Public Panel told us that replacing old equipment before it fails should be an investment priority as it will prevent problems occurring in the future.
- Our Plugged In Public Panel also acknowledged the need to improve performance for customers receiving multiple power cuts and those experiencing fuel poverty as the panel had a desire for fairness and "not leaving people behind".
- Our ongoing engagement with our stakeholder advisory panels helps us develop our plans and set challenging targets to deliver stakeholders' strategic priorities. "Keep our customers lives running" is one of them. This priority continues to remain important with 88% of stakeholders who attended our summer 2020 regional advisory workshops saying it was important to invest in improving network reliability further. Our Chief Executive Advisory Panel also recognised reliability as an important issue and noted the inconvenience of short-duration interruptions, particularly to businesses.

Benefit 15: Reducing the number of power cuts

The frequency of power cuts is measured through the number of interruptions a customer experiences on average. We commit to reduce the number of interruptions experienced by customers on average by a further 20% from their levels in the 2021-2023 period. This will reduce the average from around once every four years to once every five years.

We will reduce the number of customers affected by each fault on the network by installing new automated control equipment.

Last year, the North West network had the second best performance out of the 14 distribution network operators for power cut frequency. This proposal will improve performance even further with customers benefitting from improved reliability.

Outcome description	Reduce frequency of power cuts by 20% from 2021-2023 levels
Current performance level	28 interruptions per year per 100 customers
Incremental cost of proposal	No upfront allowances – payment on results only via Ofgem's IIS incentive mechanism
Target delivery date	31 March 2028
How will we measure success?	This will be measured through Ofgem's existing IIS ODI-F framework

Benefit 16: Reducing the duration of power cuts

The overall time that customers are without electricity is expressed using the Customer Minutes Lost term. We also commit to reduce this by a further 20% from the levels in 2021-2023 in the RIIO-ED2 period. This will reduce the average time without electricity in a year from around 25 minutes to 20 minutes.

We will do this by rolling out new innovative technology to identify faults and their location faster, and training more engineers to be able to respond quickly to these faults.

Last year, the North West network had the fourth best performance out of the 14 distribution network operators for power cut duration. This proposal will improve performance even further with many customers benefitting from reduced disruption.

Outcome description	Reduce time off supply by 20% from 2021-2023 levels
Current performance level	27 minutes lost per year per 100 customers
Incremental cost of proposal	No upfront allowances – payment on results only via Ofgem's IIS incentive mechanism
Target delivery date	31 March 2028
How will we measure success?	This will be measured through Ofgem's existing IIS ODI-F framework

Benefit 17: No 'worst-served' customers by the end of ED2

We maintain high standards of reliability by investing in the network, using new technology to minimise the impact of faults when they do occur and continuing to improve our operational response and practices.

However, there is still a small minority of customers, mostly in rural areas, who receive a performance that is significantly worse than the average.

This is often due to the presence of a large number of overhead cables, combined with greater exposure to storms, wind-borne debris and falling trees.

While the average time to locate and repair these faults is relatively short compared to those on underground networks, the overall pattern remains one of significantly better performance in urban areas.

Our customers and stakeholders want us to improve the levels of service we provide to customers in more exposed parts of our network.

In response, we will deliver a targeted programme of enhancements to improve the reliability of the poorest performing parts of the network.

This will be based on using Ofgem's new definition of a 'worst-served customer' which are customers experiencing 12 or more faults at HV and above over three years, with a minimum of two in each year. We have assessed all the areas which would have qualified under this new measure since 2016 and have designed proposed measures for each of them.

We were the only DNO to commit to achieving no worst-served customers in ED1 and we will continue to aim for this in line with the new broader stretching definition by the end of ED2.

Outcome description	No worst-served customers by Ofgem's broader more stretching target, by the end of ED2
Current performance level	Only DNO to achieve no worst-served customers under previous definition
Incremental cost of proposal	£20m
Target delivery date	31 March 2028
How will we measure success?	Through a Common PCD based on the number of customers benefitting and the level of improvement made

Benefit 18: Improving reliability for electricity users in vulnerable circumstances

The adverse consequences of a power cut can be considerably greater for electricity users in vulnerable circumstances.

One of the most impactful things we can do to support communities with a large number of electricity users in vulnerable circumstances is to improve the reliability of the local network.

We consider 236,000 of our 2.4 million customers (10%) to be in the most vulnerable circumstances. This includes but is not limited to customers with a chronic/serious illness. Some of these customers live in areas (often highly urbanised) which already enjoy a very reliable electricity supply, but many will suffer the inconvenience of more frequent power cuts.

In ED2 we plan to complete a targeted programme of network investments that will reduce the future likelihood of a loss of supply for groups of customers with known high vulnerabilities fed from known poorly performing parts of the network. This will total £3m and benefit 844 customers with a known vulnerability at an average cost of £3,393 per vulnerable customer. Other customers in these areas will also benefit from the improvements.

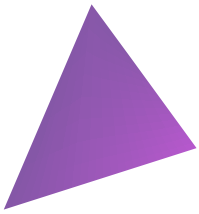
In addition we will mitigate the impact of high voltage faults on customers with a known high vulnerability. This will be focused at areas which, whilst they may have reasonable current reliability, are vulnerable to extended power cuts due to the network construction. This will be achieved by means of automation, introducing remote control to distribution substations and ensuring the availability of alternative routes to provide power if there is a fault. This will total £16.6m and benefit 16,617 highly vulnerable customers at an average cost of £1,000 per vulnerable customer.

Outcome description	Improved network reliability for customers where there is a high incidence of customers in vulnerable circumstances
Current performance level	Investments for 56 key sites only (hospitals etc.)
Incremental cost of proposal	Total cost of £20m
Target delivery date	31 March 2028
How will we measure success?	Through a Bespoke PCD based on the number of vulnerable customers benefiting from the proactive measures

4.4.2 Building a resilient network

Example customer and stakeholder input to this priority area:

- Our Plugged In Public Panel told us that with the increase in extreme weather and flooding that building resilience into the network must become a bigger priority moving into the future. They felt it would improve Electricity North West's long-term efficiency and would have a positive impact on other priorities, particularly the reliability of the network and environmental concerns.
- There was a strong emphasis on building up resilience against cyber-attacks which were viewed by our Plugged In Public Panel as a serious threat due to the extent of damage there could be if they were to happen. Improving the resilience of the network to new and more frequent forms of cyber-attacks was seen as a worthy investment.
- Through our acceptability testing qualitative focus groups customers told us it was good to be proactive and safeguard the network against external threats.
- Our Local Resilience Fora engagement meetings allowed us to do specific engagement on our plans with this expert group made up of emergency responders including local authorities, emergency services, utilities and NHS providers. They emphasised the need for us to target investment in protecting the network against foreseeable threats such as bad weather.



Our Plugged In Public Panel told us that with the increase in extreme weather and flooding that building resilience into the network must become a bigger priority moving into the future.

Benefit 19: Improving flood protection

The effects of climate change have led to some dramatic weather patterns in recent years, which have had an adverse impact on our network and our customers.

For example, in 2015, Storm Desmond caused flooding at Lancaster's major substation, cutting power to more than 60,000 customers. We invested £6m to raise key equipment at the substation three metres above the ground, to keep them safe if the site flooded again.

In ED2, we will build on the work completed to date, by improving flood defences to our highest voltage substations serving more than 10,000 customers, in line with the recommendations of the National Flood Resilience Review and also addressing sites newly identified as at risk based on the latest Environment Agency flooding data.

This programme will increase flood protection to 15 existing substations and install defences at 21 newly identified as at risk serving 345,000 customers at a forecast cost of £3.6m. Its completion means that all of our major substations will be protected to at least 1/100 year flood risk, including assumptions on future climate change impacts.

Outcome description	Protect 36 sites from risk of flooding in a one in 100 year storm event
Current performance level	All sites protected to current standards based on previous data
Incremental cost of proposal	Total cost of £3.6m
Target delivery date	31 March 2028
How will we measure success?	Through reporting our progress on sites completed and customers benefiting through an ODI-R

Benefit 20: Improving our management of trees near overhead lines

Trees or branches falling onto power lines can cause power cuts and damage. For example, high winds during Storm Ciara in 2020 caused tree damage to our network, resulting in power cuts to 27,000 customers.

Our teams of trained tree cutters and surveyors will increase inspections of vegetation near overhead lines in ED2, and work collaboratively with landowners to prune, fell and dismantle more trees at risk of damaging our network.

In ED2, we will also have to address the impacts of diseased trees, particularly Ash Dieback – a highly destructive disease caused by a fungus – which is rapidly spreading through the country. Ash Dieback causes ash trees to weaken and pose a greater risk of falling onto overhead lines with consequent impacts on power cuts and safety. To mitigate these impacts, we (together with the other network operators and bodies such as local authorities and highways agencies) will need to start proactively removing these trees before they pose a danger.

We have also reviewed the number of trees that we cut down during our proactive vegetation management activities. While most trees are pruned or coppiced by our skilled arborists, some trees do need to be fully cut down. Due to the need to fell diseased trees affected by Ash Dieback, during ED2 we may have to cut down up to 10,000 trees a year. We are planning to work with partners to plant 10,000 trees in our region every year of ED2.

Customers have also asked us to increase our work to promote biodiversity in other ways – see Benefit 37 for further details.

Outcome description	Enhanced tree management dealing with Ash Dieback and also ensuring fewer tree-related faults due to storms
Current performance level	Compliance with current standards
Incremental cost of proposal	£1.5m per year plus £3m per year for Ash Dieback (proposed to be managed under Uncertainty Mechanism)
Target delivery date	31 March 2028
How will we measure success?	This will be measured through our existing IIS ODI-F reliability measure We propose that Ash Dieback is covered by a separate Uncertainty Mechanism based on volumes felled We will report our tree-planting progress through an ODI-R based on numbers planted against the target

Benefit 21: Increasing cyber resilience

As electricity networks become increasingly data-enabled, it is more important than ever that the data networks that support them are resilient to external threats. In the ED2 period, we will focus on enhancing our current cyber security capability.

The government introduced the Network and Information Systems (NIS) Regulations 2018 to increase the overall cyber security and cyber resilience of Operators of Essential Services (OES) such as ourselves.

The regulations require us to take appropriate and proportionate technical and organisational cyber security measures to manage risks and minimise the impact of incidents affecting these systems.

The cyber threat landscape is constantly changing, with cyber criminals using more complex techniques to access and compromise organisations than ever before. As these techniques evolve in complexity, and with criminals having different motivations and objections to their attacks, it makes it increasingly challenging to identify malicious activity.

Cyber threats cut across all of our business strategic goals and pose a risk to all our activities. We rely on cyber security to protect our customers' data and provide excellent customer service, to ensure efficient working practices within our workplace, to protect the reliability of our network against unauthorised access, to protect the network now and in future as we move to more actively managed systems, to keep costs low for customers and to ensure the safety of our customers, employees and contractors.

To develop our cyber strategy, we completed a self-assessment using the Cyber Assessment Framework (CAF) which informed our medium-term cyber security improvement plan. This sets out the steps we plan to take in ED2 and beyond to comply with the regulations and exceed them.

Annex 10 provides our Cyber Resilience Plan which aims to address the fluidity of the cyber security landscape and provides more detail on the projects that will enable us to execute our strategy.

Outcome description	Comply with requirements of Network and Information System Regulations
Current performance level	Completed self-assessment under new Cyber Assessment Framework
Incremental cost of proposal	£14.4m
Target delivery date	31 March 2028
How will we measure success?	We are likely to have some mandatory requirements as part of the RIIO-ED2 licence We will work with Ofgem to define appropriate measures to be included within the proposed Common PCD

Benefit 22: Maintaining resilience in a changing climate

We face many challenges in ensuring that we continue to deliver leading reliability standards in the face of changing climate patterns. These actions are typically described as 'adaptation' to climate change, as distinct from the measures being taken to mitigate or restrict the level of climate change.

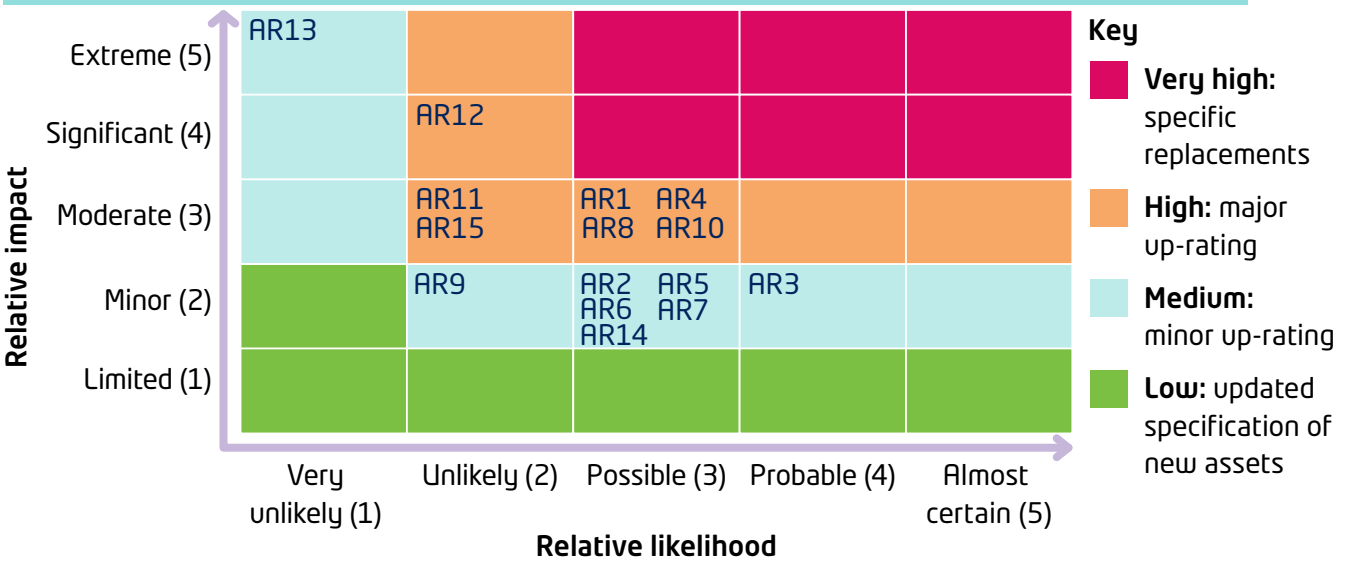
In 2021, we will complete our third Climate Change Adaptation report to Defra, setting out what we consider are the key medium and long-term impacts of climate change on the network. The previous assessment set out that the key risks related to the forecast increased frequency and severity of extreme events and so our plan is focused on continuing to improve the resilience of the network in this regard (see Figure 22 below).

Our measures described on flooding and tree-cutting show the increased work we will undertake to improve resilience in a changing climate.

The actions we are taking to ensure our network is resilient to the future challenges of a changing climate are set out in further detail in our accompanying Climate Resilience Strategy at Annex 11.

Outcome description	Implementing Climate Change Adaptation Strategy
Current performance level	Monitoring climate change effects
Incremental cost of proposal	Included under other proposals
Target delivery date	31 March 2028
How will we measure success?	We will report annually on our progress against the action plan in our strategy under a ODI-R

Figure 22: Overall risk matrix for climate change impacts from our draft 2021 Adaptation report



(Refers to UKCP09 projections for the end of the century assuming a High Emissions Scenario and 90% probability level and no adaptation measures taken)
AR1 Overhead line conductors affected by temperature rise, reducing rating and ground clearance.
AR2 Overhead line structures affected by summer drought and consequent ground movement.
AR3 Overhead lines affected by interference from vegetation due to prolonged growing season.
AR4 Underground cable systems affected by increase in ground temperature reducing ratings.
AR5 Underground cable systems affected by summer drought and consequent ground movement, leading to mechanical damage.
AR6 Substation and network earthing systems adversely affected by summer drought conditions, reducing the effectiveness of the earthing systems.
AR7 Transformers affected by temperature rise, reducing rating.
AR8 Transformers affected by urban heat islands and coincidental conditioning demand leading to overloading in summer months.
AR9 Switchgear affected by temperature rise, reducing rating.
AR10 Substations affected by river flooding due to increased winter rainfall.
AR11 Substations affected by pluvial (flash) flooding due to increased rain storms in summer and winter.
AR12 Substations affected by sea flooding due to increased sea levels and/or tidal surges.
AR13 Substations affected by water flood wave from dam burst.
AR14 Overhead lines and transformers affected by increasing lightning activity.
AR15 Wildfire impacting our equipment

4.4.3 Keeping our communities safe

Electricity is potentially very dangerous and maintaining the safety of our customers and operatives is fundamental to everything we do.

We continually inspect and maintain our equipment, replacing or upgrading assets which are deemed no longer fit-for-purpose. We ensure our engineers are well-trained and able to operate safely, supported by rigorous procedures, compliance assurance and a strong behavioural attitude to safety.

In ED2, we will deliver several major programmes to safeguard public safety, working beneath the streets and in high-rise buildings. These programmes build on our work in ED1. While we already have extensive information available to the public on safety from reporting damage to working or spending leisure time near our equipment, we will expand our local public safety messaging, working with other local utilities to share messaging and increase its impact. For more information see Annex 9 on our Education and awareness strategy.

We have an incredibly robust safety culture, led by our CEO, keeping our teams and the public safe, and we will continue to deliver on this key area throughout ED2.

Example customer and stakeholder input to this priority area:

- Customers during our initial priorities research told us that it should be priority for Electricity North West to always ensure the network is safe for customers. During the qualitative stage customers ranked 'delivering a safe network' as their top priority with reasons being that safety should 'always come first' and that all other areas are reliant on an initial safe network.
- Members of our Plugged In Public Panel emphasised that keeping employees and customers safe must be a priority in every aspect of our work, especially considering the potential dangers posed by electricity.
- During our 2019 regional stakeholder advisory workshops stakeholders told us that 'keeping our employees and customers safe' wasn't something that could be easily traded off.

Benefit 23: Making electricity in high-rise buildings safer

Often building owners do not realise that they may be responsible for the electrical network in the building, and this lack of clarity on ownership can cause issues with maintenance.

In ED1 we began a programme of proactively contacting building owners and establishing if they are or wish to formally become the building network owner, or if they want to formally agree that we should be the owner.

Until responsibilities are formalised we take responsibility and act and assess the condition of cables and fit circuit breakers and monitor communal electrical cables at high-risk properties 24/7.

Formal agreements mean that we can more easily gain access to the properties to properly inspect the electricity infrastructure and install monitoring devices and renew their internal wiring where required.

Our monitoring equipment enables us to identify where faults are developing which may indicate a risk of an electrical fire. We will expand our programme to cover 234 buildings which are considered high risk as well as highest risk during ED2. To assess risk we take into consideration the number of customers residing in the property, access and exit restrictions and the location of equipment.

We will also continue our programme of rewiring buildings where inspections and monitoring indicates a potential safety risk.

Outcome description	Installing electrical monitoring in 234 high risk high-rise buildings
Current performance level	Monitoring electrical risks in 52 highest risk high-rise buildings
Incremental cost of proposal	Additional £10m on current levels
Target delivery date	31 March 2028
How will we measure success?	We will report on our progress in installation under an ODI-R

Benefit 24: Delivering safety campaigns

We will continue to participate in industry-wide safety awareness campaigns e.g. household safety, electrical goods safety, farming and fishing near overhead lines.

We already collaborate in shared awareness campaigns with the other distribution network operators, coordinated through the Energy Networks Association, our representative national body.

We will enhance these national campaigns by taking the lead in developing more regionally focused campaigns, in conjunction with other utility operators (e.g. water and gas) in the North West.

Joined-up messaging will make it easier for customers to access important safety information.

We will increase public awareness of the dangers of electricity and behaviour-change that saves lives.

Outcome description	Regionally focused, multi-utility safety campaigns
Current performance level	National safety awareness campaigns
Incremental cost of proposal	This forms part of our overall Customer experience proposals
Target delivery date	31 March 2028
How will we measure success?	We will report on our progress in delivery under an ODI-R

Benefit 25: Increasing safety education

We will work with schools to expand our safety and science technology, engineering and maths (STEM) education programmes. This will include delivering curriculum-linked educational material and awareness campaigns in person and online, to promote skills and opportunities in the electricity industry and ensure customers take precautions when working with or near electrical equipment to significantly reduce the risk of injury in our community.

Our educational work will include other key topics such as decarbonisation and sustainability, STEM skills and careers, targeting schools, college and university students to promote inclusivity.

We currently undertake a programme of visits to schools in partnership with trusted third-party providers. The programme is currently delivered to 3,500 primary school children each year and has recently developed a range of online resources. Based on positive feedback from those who receive this, we will continue to grow and evolve our primary key stage two (KS2) offering and significantly scale up what we offer to secondary schools and colleges in KS3 and KS4 linking to our recruitment and inclusion in our people strategy.

We will review the ongoing effectiveness of the programme that will see increased engagement in safety issues among young people, changing behaviour and saving lives and increase awareness and interest amongst a diverse future workforce.

Further details of our forward education strategy can be found at Annex 9.

Outcome description	Wider safety education focused on secondary schools
Current performance level	Safety education focused on primary schools
Incremental cost of proposal	This forms part of our overall Customer experience proposals
Target delivery date	31 March 2028
How will we measure success?	We will report on our progress in delivery under an ODI-R

4.5 Delivering an environmentally sustainable network

Benefit 26: Improving overhead line safety

We will deploy our new LineSIGHT technology developed in ED1 to install sensors on sections of overhead lines to detect any dangerous low-hanging lines. Faults on rural networks can sometimes cause overhead power lines to hang low whilst remaining live, which also creates a public safety hazard. This can be a particular issue during storm events with multiple occurrences.

New technology developed by Electricity North West will enable the detection of damaged equipment earlier and help us to pinpoint the location of faults, enabling more efficient despatch of repair crews.

Customers will benefit from the faster removal of safety hazards caused by network faults as well as reduced likelihood of power cuts. The system will also allow us to identify issues more quickly in storm situations where we can have many faults to deal with.

Outcome description	Roll out LineSIGHT technology across the overhead line network
Current performance level	Developed and trialled Sentinel technology
Incremental cost of proposal	Total planned programme of £34.5m
Target delivery date	31 March 2028
How will we measure success?	Through a Bespoke PCD based on number of sensors fitted and volume of circuits newly monitored

4.5.1 Leading the North West to Net Zero

Enabling the transition to a Net Zero carbon future is the biggest challenge that energy networks currently face. The UK is on a transformative journey to decarbonise, and as the North West's electricity distributor, we have a crucial role to play.

In ED2, we will invest strategically in our network so that we have the capacity in place to support the expected increase in electricity demand from electric vehicles and the changing needs of businesses and homes.

The impact of electric vehicles on the local electricity network is set to be significant and we are continuing to work with our local authorities to develop our pioneering decarbonisation pathways reports to meet local Net Zero targets within our region. You can read more about our specific electric vehicle strategy in Annex 12.

We will continue to develop our next generation network management system which will enable rapid, automated control of our network – vital to respond to a more complex, decentralised network.

We will continue to evolve our own role, by helping local, renewable energy schemes connect to our network, and by providing advice to homes and businesses on how to take advantage of low carbon technology. And we will continue to provide regional leadership, working with key stakeholders such as local authorities to help them develop and implement their low carbon development plans for the coming years.

Example customer and stakeholder input to this priority area:

- We have recognised the priorities of our national stakeholders in the transition to Net Zero particularly taking into consideration Ofgem's Decarbonisation Plan and the Climate Change Committee's Sixth Carbon Budget. Our own research mirrored that of the Department for Business, Energy and Industrial Strategy (BEIS) showing that more than 60% of customers did not understand the term 'Net Zero'. This has informed how we position questions and the background material that we prepare to enable engagement.
- At our Powering Up Recovery events the majority of our local and regional political and business stakeholders told us that we should take a proactive approach to bring forward future investment to increase network capacity and enable faster pathways to Net Zero.
- Our targeted engagement with the three county councils in our region revealed that they all have different Net Zero ambitions. However they have recognised the key role that Electricity North West has as an anchor institution in the region and our important role in supporting local action. We are working closely with Cumbria and Lancashire County Councils as well as Greater Manchester Combined Authority at all levels, including CEO-level.
- Our Plugged In Public Panel emphasised the urgency needed to tackle climate change and the responsibility of Electricity North West to play a key role in modelling the best approach and acting as a sector lead in energy distribution.
- Decarbonisation and Net Zero has always been a top priority for the members of Youth Focus North West and they consistently ranked it as one of their top priorities in our discussions with them. During these discussions they told us that they will always prioritise Net Zero and low carbon technologies as it's their future with members expecting that their first cars would be electric and that there was no alternative.

Benefit 27: Helping customers connect low carbon technologies

Demand for electricity is likely to increase significantly from its current levels over the next decade, as the transport and heat sectors become increasingly electrified.

Although there are likely to be some offsetting reductions from energy efficiency improvements and changes in industrial demand, we nevertheless need to plan for a large overall increase in consumption.

At the same time, we expect to see an increase in the connection of renewable generation to our network – another big change which also has implications for our network investment plans.

Meeting this increasing demand by simply expanding the network is not financially sustainable. We know from our research that bill payers would not accept the large price hikes that this would entail. Instead, we need to take a more strategic approach – by providing the right capacity in the right place at the right time, and by making the existing network work harder.

Outcome description	Ensuring capacity is provided in the right place and at the right time as electricity demands increase
Current performance level	Providing capacity in line with our network management plans and forecasts
Incremental cost of proposal	£25m increase on current levels of reinforcement expenditure
Target delivery date	31 March 2028
How will we measure success?	Through measures included on the DSO Scorecard

Benefit 28: Removing constraints for renewables

We will help renewable electricity generation connect to the network, such as solar and wind power.

At the moment, certain parts of our network (e.g. city centres) are restricted in the amount of renewable generation that can connect because of the characteristics of some of the equipment installed there. If we don't support this, far less renewable generation will be able to connect in the North West.

We will make the network ready so that renewable electricity generation can be connected to more of our network, focusing on the areas most likely to see more renewable connections where we can replace our equipment in advance.

By helping connect more renewable electricity generation we will enable the reduction of carbon emissions and help tackle climate change.

Outcome description	Remove constraints for renewable generation connection
Current performance level	Constraints exist in certain areas of network increasing the cost of renewable generation connection
Incremental cost of proposal	£23m above current levels.
Target delivery date	31 March 2028
How will we measure success?	Through reporting the levels of renewable generation connected to our network in an ODI-F

Benefit 29: Establishing a new community energy fund

Community energy projects are citizen-led schemes to reduce, generate or purchase energy. Examples include neighbourhood-led solar or hydro projects.

In ED1 we currently offer a £75,000 fund per year to support these projects and helped six such projects last year. These projects enable local, renewable electricity to be generated and connected to the network, as well as increasing awareness about energy efficiency and local action. The more power that is saved or connected locally means the lower the cost of the distribution of that power, saving money and emissions.

In ED2, we will increase this fund to ramp up each year to meet demand. We will increase the fund from £75,000 to £150k in 2023, double to £300k in 2024, double again to £600k in 2026. This will enable more projects to go ahead, while allowing for growth in the sector in our region. It will also enable ongoing benefits measurement based on projects delivered, which could support justification for increasing the funding level further in ED3.

Alongside the funding, we will provide a free, dedicated support service to help guide community groups in the development of their projects, applications for funding and the connection of their projects to our network.

Outcome description	Fund increasing from £100k a year to £600k by end of ED2 to support sector growth
Current performance level	£75,000 per year fund
Incremental cost of proposal	£1.5m
Target delivery date	31 March 2028
How will we measure success?	By reporting the value of funds disbursed and the benefits realised through an ODI-R

Benefit 30: Unlooping customers' power supplies

A looped service describes a situation where two or more households are connected to the electricity main with the same service cable. Hundreds of thousands of homes were historically connected to the power network in this way over the years to save the costs of connecting each individual property to the mains cable.

However, this historic practice of sharing a service cable restricts the number of additional devices a household can connect to. This can prevent adoption of new technologies such as electric vehicle chargers – a change unforeseen when the original connections were made.

In ED2, we will unloop the electricity services to properties installing low carbon technologies such as electric vehicle chargers, putting in new cables to connect individual properties to the mains. The costs of this vary depending on the existing arrangements but typically cost £3k per new service connection.

We will do this when we are notified about electric vehicle charger connections or where customers want to connect heat pumps. Our forecasts for the take-up of these technologies gives a strong indication of how many will take place in regions where our services were traditionally connected in a looped manner. This will be the start of an ongoing programme that will be necessary to eventually remove all looped services in the North West.

Outcome description	Unloop 32,000 services to properties adopting low carbon technologies
Current performance level	Few hundred services unlooped when requested
Incremental cost of proposal	Increased programme of £103m
Target delivery date	31 March 2028
How will we measure success?	Through reporting the numbers and costs of services unlooped via the relevant Uncertainty Mechanism

Benefit 31: Providing a decarbonisation advice service

We will provide free advice to households and businesses, to help them adopt low carbon technologies and make their properties more energy efficient.

Information will be delivered through the development of our online hub, awareness campaigns on social media and a range of other communication methods. We will also work with partners to ensure information is up to date and accurate regarding the power network.

Outcome description	Continue to provide, develop and promote decarbonisation advice hub
Current performance level	Online decarbonisation hub recently established
Incremental cost of proposal	Continue at current rates
Target delivery date	31 March 2028
How will we measure success?	Through an ODI-R on the levels of advice given and feedback on the quality of that advice

We will provide free advice to households and businesses, to help them adopt low carbon technologies and make their properties more energy efficient.

4.5.2 Improving our direct environmental impact

Example customer and stakeholder input to this priority area:

- In qualitative focus groups as part of our initial priorities research most consumers felt that this is an important area to focus on as part of Electricity North West being a good corporate citizen. Customers also said that if we were leading a charge on Net Zero that it was important to get our own business in order first.
- Through our ED1 2020 social value research customers told us that we had a duty to maintain our network in an economical and efficient way, to preserve amenity, and to conserve and enhance the natural beauty, wildlife and the cultural heritage of designated landscapes.
- Our Plugged In Public Panel stressed the importance of Electricity North West to lead by example in reducing its own carbon footprint. 58% of Our Plugged In Public Panel told us that we should reach Net Zero carbon emissions in our operations by 2038 to align with the end of RIIO-ED4 and the UK's seventh carbon budget.

At our April 2020 Sustainability Stakeholder Advisory Panel the majority of stakeholders told us that we should be reaching Net Zero carbon emissions in our operations by 2038. This was regarded as the most ambitious option and is aligned to Greater Manchester's commitment to decarbonise by 2038.

Benefit 32: Reducing our business carbon footprint

We will continue to work to reduce our own business carbon footprint – a move that our stakeholders and customers strongly support.

By 2021, we had reduced carbon emissions by42%, compared to 2015 levels. We achieved this through a range of initiatives, such as better monitoring of heating in our buildings and installing LED lighting at all our sites. In ED1 we have adapted two of our key sites, our training academy in Blackburn and our depot in Oldham, to be zero carbon buildings.

In ED2, we will continue to lead by example, by accelerating the pace of our own decarbonisation programme, in an effort to become a carbon neutral business by 2038.

We will progressively replace vehicles with electric equivalents and convert our buildings to be much more energy efficient.

There is a lot of work to do on making our buildings more efficient, particularly those built a long time ago – the quicker we do this, the sooner we will see the carbon benefits. We plan to make one of our depots zero carbon for each year of ED2.

We will replace our current vehicles with electric equivalents when they become cost neutral or cost beneficial over their lifecycle. We anticipate that this will lead to our vehicle fleet being 29% electric by 2028.

For more detail see our Environmental Action Plan in Annex 13.

Outcome description	Five new zero carbon sites and over 25% of vehicle fleet electrified. Reduce carbon footprint to 8,175 tCO_2e/yr on average (subject to agreement of a science-based target)
Current performance level	42% reduction in carbon footprint (2015-2021) to 14,090 tCO_2e/yr
Incremental cost of proposal	£6.5m
Target delivery date	31 March 2028
How will we measure success?	Through reporting our Carbon Footprint as part of the overall Environmental Scorecard

Benefit 33: Reducing leakage from oil-filled cables

We will reduce leaks from the relatively small number of bio-oil-insulated electricity cables that remain on our network. We have 44,000km of underground electricity cables. 380km of these (0.9%) are of an older construction that contain oil for insulation.

These older cables can sometimes leak when they are damaged, seals deteriorate or ground conditions change. We have been progressively removing this type of cable from our network over a number of years.

In ED2, we plan to continue with this programme prioritising the highest risk cables and also carefully manage those lengths that do remain using new tracing technologies to ensure that we can identify and fix leaks as soon as they occur.

These measures will enable us to minimise the leakage from these cables and we have set an annual leakage target of less than 25,000 litres, representing a 17% reduction on the targets we set for the end of ED1.

Outcome description	Reduce oil leakage from underground cables to less than 25,000 litres per year on average
Current performance level	More than 30,000 litres per year on average
Incremental cost of proposal	Included as part of our proposal on improving network health
Target delivery date	31 March 2028
How will we measure success?	By reporting on the volume of oil leaked through an ODI-R

Benefit 34: Removing overhead lines in beauty spots

Since 2005 we have been working with partners such as the Lake District and Peak District National Park Authorities to remove overhead power lines and replace them with underground cables in National Parks and Areas of Outstanding Natural Beauty (AONBs) in our region.

Overhead lines in these locations can be deemed to be visually intrusive and detract from the landscape. By 2023, we expect to have replaced 150km of overhead lines with underground cables.

In ED2 we will continue our programme working closely with National Parks, AONBs and other key stakeholders to replace 7-8km of overhead lines each year with underground cables in locations identified by our partners of being of particular visual impact.

We will work with experts where appropriate, including archaeologists, the Environment Agency and local councils to minimise other environmental impacts and ensure the work is handled sensitively.

Outcome description	Maintain our successful programme of improving visual amenity
Current performance level	Replace 7-8km of overhead line with underground cables each year
Incremental cost of proposal	Maintained at current levels
Target delivery date	31 March 2028
How will we measure success?	By reporting on the proportion of our entitlement spent, and lengths of line undergrounded in an ODI-R

Benefit 35: Reducing losses from the network

A small amount of electricity is lost in the process of distributing it to customers, due to it being converted into other forms of energy, e.g. transformers getting warm.

This is wasteful in terms of carbon emissions and the cost to bill payers for electricity they never get to use.

To reduce these losses in ED2, we will upsize cables and equipment to lower loss equivalents when we are undertaking work for other purposes and also proactively replace the highest loss equipment on our network, even if the equipment does not require replacement for any other reason.

This proactive investment will save around eight GigaWatt hours of electricity (GWh) per year by 2028 – enough electricity to power around 2,760 homes for a year. Further details on our losses strategy for RIIO-ED2 can be found in Annex 14.

Outcome description	Reduce losses by 8GWh per year
Current performance level	Proactively reduced by 11GWh per year
Incremental cost of proposal	£10m total cost, equivalent to similar programme in ED1
Target delivery date	31 March 2028
How will we measure success?	Reporting the numbers of transformers replaced and losses saved against our target as part of our Environmental Scorecard

Benefit 36: Reducing emissions of potent greenhouse gases from equipment

Sulphur Hexafluoride (SF_6) is used throughout the industry as an effective electrical insulator and is in some of our equipment but is a potent greenhouse gas if leaks occur. Currently 0.32% of our total SF_6 is lost via leakage each year.

There are currently few viable alternatives to using SF_6 so we will proactively manage our equipment to minimise leaks, replace old equipment if its condition deteriorates, and also work with industry to stimulate the development of alternatives. As we switch over to installing SF_6-free equipment, we expect the costs to increase in the short term, until the widespread availability of alternatives.

We are proposing to commit to maintaining our leakage rate to less than 0.3% of our total inventory over RIIO-ED2.

Outcome description	Reduce SF_6 leakage rate to below 0.3% per year
Current performance level	SF_6 leakage rate at 0.32% per year
Incremental cost of proposal	£8m
Target delivery date	31 March 2028
How will we measure success?	By reporting our loss rate against the target annually as part of our Environmental Scorecard

Benefit 37: Making our sites havens for wildlife

In 2019/20 we transformed nine of our substation sites into low-maintenance, self-pollinating spaces following a suggestion from one of our grounds workers.

Not only do they benefit the local area but they can also reduce the amount of maintenance needed by Electricity North West. Unlike a site with grass that needs regular trimming and weeding, a site filled with self-pollinating wildflowers does not need regular visits. In addition, these sites are in the heart of local communities and many have been taken on to be maintained in partnership with local groups.

We will expand this programme in ED2 to create and support other green spaces and biodiversity schemes, including tree planting schemes where appropriate. Our tree planting commitment is described in Benefit 20.

This combined programme is forecast to cost £200k per year, or £1m over the RIIO-ED2 period.

Outcome description	Create an additional 100 bio-diversity and community green space sites
Current performance level	11 new sites in RIIO-ED1
Incremental cost of proposal	£1.9m
Target delivery date	31 March 2028
How will we measure success?	Through reporting the number of sites benefiting as part of our Environmental Scorecard

4.6 Consumer Value Propositions

Whilst Ofgem sets minimum requirements for energy networks' business plans, many of our proposals exceed these requirements based on input from customers and stakeholders, and what they have told us they are willing to pay for.

In RIIO-ED2, Ofgem have included an option to submit these additional proposals as Consumer Value Propositions (CVPs). This section introduces our two CVP proposals for RIIO-ED2. Further details on each, including our assessment against Ofgem's CVP criteria can be found in Annexes 15A & 15B.

In 2019/20 we transformed nine of our substation sites into low-maintenance, self-pollinating spaces following a suggestion from one of our grounds workers.

CVP 1: Smart Street: Reducing cost and carbon for customers

Smart Street is our award-winning initiative to reduce customers' electricity usage and bills by managing the voltage on the local network.

By using technology at our substations to subtly alter the amount of electricity flowing to homes, we can reduce consumption and save customers' money, without affecting their usage behaviour in any way.

Smart Street has been proven to reduce customers' energy consumption by up to 8% – equivalent to a £60 reduction in annual energy bills.

We are currently rolling the project out to 64,000 customers in the North West, as part of a £18m project funded under the Innovation Rollout Mechanism (IRM) in ED1.

In ED2, we will extend Smart Street to a further 250,000 households in our region, through a £78m investment programme. We will target the deployment of this technology to areas where there are higher populations of customers in fuel poverty.

This technology also increases the available capacity of the network and therefore we will also target the deployment where we expect clusters of low carbon technologies such as solar panels and heat pumps so that more costly network upgrades can be avoided.

While the technology can only be applied to underground networks the cost to serve customers on underground networks is much lower than the cost on overhead lines. We already have in our plan significant investment earmarked to improve the overhead line network such as tree management, worst-served customer programme and the rollout of our LineSIGHT technology.

Outcome description	Extend Smart Street to 250,000 households
Current performance level	64,000 customers
Incremental cost of proposal	£78m
Target delivery date	31 March 2028
How will we measure success?	Through a Bespoke PCD based on the number of substations having the technology installed

CVP 2: CLASS: Balancing the GB grid in a cheaper, lower carbon way

CLASS works by reducing the voltage at primary substations to reduce electricity demand placed on the network from Electricity North West customers.

This is achieved by lowering the tap changers on the transformers at each substation to achieve an aggregated response across our network.

This response can then be provided to National Grid Electricity System Operator (NGESO) for helping them to balance the national demand and supply of electricity and maintain security of those supplies.

CLASS is controlled through our Network Management System (NMS) which monitors the status of each CLASS substation and informs the tap changers to move up or down when an instruction is received from NGESO.

Whilst our systems enable CLASS to operate, the actual operation happens directly by NGESO actions to instruct CLASS, with no intervention by us.

The CLASS project provides the following benefits to our customers:

1. CLASS revenue is expected to be shared with customers on a 50% sharing basis providing an overall reduction in the customer's electricity bill.
2. Reduces carbon with the technology used and potentially displacing other providers from the market with higher emissions e.g. diesel generators.

We would like Ofgem to continue the ED1 treatment of CLASS revenues so that there is an incentive for other DNOs to adopt the CLASS technology. Reward should not remove the financial benefit to customers likely to come from CLASS in ED2 but Ofgem may want to consider an additional discretionary reward of a similar magnitude to the discretionary reward provided to the CLASS innovation programme.

Outcome description	Use of CLASS to reduce voltage on demand to provide balancing services to the ESO
Current performance level	Reducing voltage on demand to provide balancing services to the ESO
Incremental cost of proposal	Reduces costs to customers
Target delivery date	31 March 2028
How will we measure success?	Share of revenue returned to customers through reducing our bill for distribution services

4.7 Compliance and engineering-driven outputs

Output 1: Maintaining high levels of competition in connections in the North West

Connections customers tell us that the best thing we can do to deliver value to them through efficient prices and high quality service is to maintain a competitive environment for connections providers in our area.

We are the most successful network operator in demonstrating that there is active competition in our area. Ofgem carried out competition tests where new connections work was categorised into 11 market segments.

Two of these were 'excluded' market segments which covered small connections (up to four premises) and where competition was expected to be less likely to develop; for these customers other mechanisms (e.g. customer satisfaction survey and time to connect incentive) are in place to ensure they receive good service.

Of the other nine market segments, Electricity North West successfully passed seven representing more than 95% of all connections in our area as shown in Figure 23 below.

We will maintain our high levels of competition in connections in ED2 as the best way of providing choice and value to customers. This approach has been discussed directly with our CEG. For more information see our Major connections customer strategy in Annex 16.

Output 2: Improving network health

The electricity network is a complex system comprising overhead lines, underground cables, substations, transformers and switchgear.

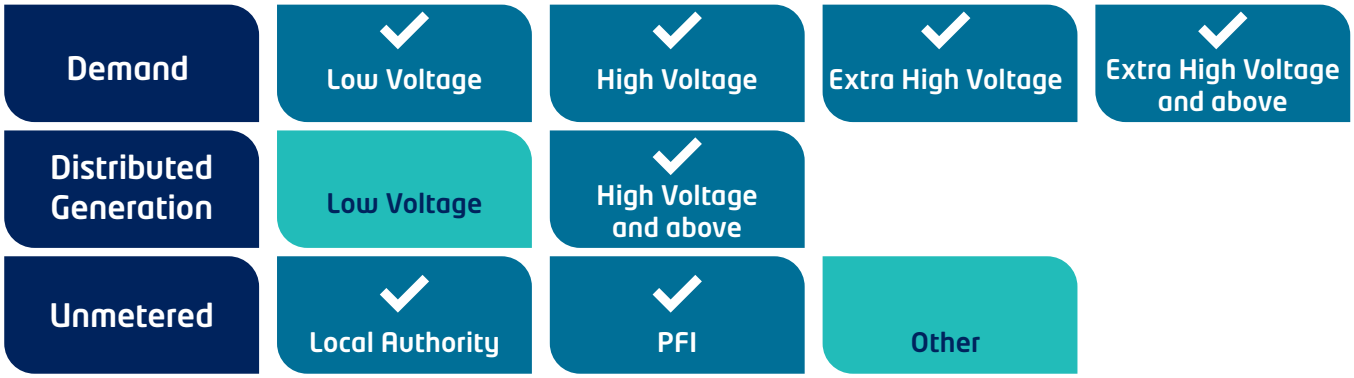
Much of this equipment is long-lived. In fact, some of our underground cables are over a century old. Over time, these assets can degrade and become increasingly prone to failure, causing power cuts.

The largest part of our investment programme is devoted to the replacement and refurbishment of existing equipment.

We measure the overall health and risk on the network using an industry standard approach. We will undertake a targeted and efficient programme of asset renewal which maintains the overall condition of the network.

Outcome description	Ensuring the overall health of the network and the risk of failure is maintained at current levels
Current performance level	Maintaining current level of network risk
Incremental cost of proposal	£24m over current levels and a total cost of £195m
Target delivery date	31 March 2028
How will we measure success?	By achieving our proposed NARMs risk points target under the associated Common PCD

Figure 23: Competitive connections market segments we have passed



Output 3: Measuring and reporting short power cuts

Very short power interruptions (e.g. lasting less than three minutes) are not currently included in our performance reporting as they have traditionally caused less disruption and their exclusion encourages the use of remote control and automation on the network to restore interruptions quickly.

As the country becomes more reliant on electricity, we recognise the increasing impact of any power cut, regardless of the length. We will work with other network operators to develop a reporting framework for these short interruptions to help us establish new ways of monitoring and ultimately addressing them.

Outcome description	Better reporting of short power cuts
Current performance level	Not included in performance reporting
Incremental cost of proposal	Less than £100k
Target delivery date	31 March 2026
How will we measure success?	Compliance with relevant Licence Obligation (LO)

Output 4: Improving telecommunications resilience

Customers benefit from faster restoration of power during faults due to automated responses and remote control of the network.

Controlling the electricity network is dependent on being able to communicate with the equipment remotely.

We will improve the resilience of equipment that enables us to monitor and manage the electricity network remotely from our central control room.

We own and operate a private communications and data network to do this. We will invest more in this network to increase its resilience against physical, virtual and weather-related threats.

Outcome description	Enhanced communications infrastructure resilience
Current performance level	Establishing internet protocol connections to all major substations
Incremental cost of proposal	£1.5m
Target delivery date	31 March 2028
How will we measure success?	Through compliance with relevant Licence Obligations and government requirements

Output 5: Investing in Electricity System Restoration readiness

Electricity System Restoration refers to the process of restarting the network following a national shutdown. Our network is currently compliant to the standards for restoration set by government but these have recently been reviewed to enable faster and more widespread restoration in these circumstances.

We commit to delivering against these new standards. This will lead to increased costs for managing our control room operation but improving standards will give reassurance to customers that there is a robust emergency recovery process in place.

Outcome description	Ensure compliance with new Electricity System Restoration resilience standards
Current performance level	Ensuring compliance with current Electricity System Restoration standards
Incremental cost of proposal	Full cost of £6.2m
Target delivery date	31 March 2028
How will we measure success?	Compliance with the government's new ESR standards

Output 6: Keeping rural transformers safe

We will replace small rural substations in exposed parts of the network. We have 220 small ground-mounted substations in rural settings which do not have modern standards of protection, meaning that fault restoration can be a lengthy process. Many of the substations are now reaching the end of their design life and their condition is starting to deteriorate.

We will progressively replace all of these substations with safer equipment, with 50% replaced by 2028 and the remainder by 2033. The prioritisation of the replacement will be based on the condition of the equipment.

Outcome description	Replace 110 small rural transformers
Current performance level	Maintaining ageing rural transformers
Incremental cost of proposal	£4m
Target delivery date	31 March 2028
How will we measure success?	Through reporting on the number of transformers replaced against our target in an ODI-R

Output 7: Enhancing security at major sites

We have an obligation to maintain the security of our sites and prevent trespassing which might cause major power cuts and safety risks. We install additional measures at our most critical sites in response to their level of risk.

We will continue this programme in ED2, maintaining existing preventative measures and installing new ones where the risk level changes. We will also continue to meet requirements set out by the Centre for the Protection of National Infrastructure.

Outcome description	Maintain security programme
Current performance level	Expanded security programme to counter new threats
Incremental cost of proposal	[Redacted]
Target delivery date	31 March 2028
How will we measure success?	Compliance with the relevant Licence Obligations

Output 8: Improving safety of underground cable pits

In ED1, we will complete a programme to inspect all 18,000 link boxes on our network.

Link boxes are underground cabinets where low voltage cables come together and can be connected or disconnected. They can pose a risk to the public because a fault on the network can very occasionally blow their cover off. There have been a number of such cases nationally during ED1.

Many of these are located in pavements causing a safety risk. Our ED1 programme will have either maintained, replaced or fitted a 'blast bag' to these link boxes, depending on their location and risk.

We have a similar programme to remove cable pits which are access points for cables, sometimes located in roadways. These pits are often in poor condition and are not used any more so, during ED2, we will complete our programme to fill in these pits with a blast absorbing material to mitigate any impact if a fault does occur.

Outcome description	Intervene on cable pit population to improve safety
Current performance level	Developed efficient techniques during link box programme
Incremental cost of proposal	£1m programme over ED2
Target delivery date	31 March 2028
How will we measure success?	Through reporting our activity in filling cable pits in an ODI-R

Output 9: Carrying out proactive safety checks on cut-outs

A cut-out is a piece of electrical equipment that forms the link between our electricity cable and the internal wiring in customers' properties.

In RIIO-ED2, most customers will have smart meters and meter readers will no longer be physically inspecting meters and cut-outs. Previously we have relied on them informing us of any issues with the cut-out.

Although some of the early smart meters will be being replaced by 2028, to ensure the cut-outs remain safe, we will need to start our own periodic inspections in ED2 and ensure we act on any issues found.

The inspection regime will cost approximately £1m per year and will ensure customers continue to have peace of mind.

Outcome description	Initiate regular cut-out safety check programme
Current performance level	n/a
Incremental cost of proposal	£6m programme over ED2
Target delivery date	31 March 2028
How will we measure success?	Through an ODI-R reporting the number of checks completed against our target

In RIIO-ED2, most customers will have smart meters and meter readers will no longer be physically inspecting meters and cut-outs.

Output 10: Complying with new legislation on PCBs

Polychlorinated Biphenyls (PCBs) are a group of artificially manufactured organic chemicals that have long been recognised as posing a threat to the environment due to their toxicity, persistence and tendency to be absorbed by living organisms.

PCBs were used in electrical equipment such as transformers as an alternative insulating fluid where fire resistance properties were required. Although we never knowingly used PCBs, some contamination of our equipment occurred during the manufacturing process.

The use of PCBs has been banned since the 1980s and we recognise that any PCBs still remaining in existing equipment pose an environmental threat.

New legislation requires all PCB-contaminated equipment to be disposed of or decontaminated of PCBs by 31 December 2025. All transformers (and some other network assets) manufactured before 1987 are assumed to be potentially PCB-contaminated (unless proven otherwise via testing) and are registered annually with the Environment Agency.

We are working to either test or statistically determine the PCB content of all this apparatus and dispose of all those items that are confirmed as PCB-contaminated by 31 December 2025.

All PCB-contaminated equipment will be sent to authorised treatment facilities where the oil will be recovered and the metal components, principally scrap steel and copper, sent for recycling.

Outcome description	Elimination of PCB-contamination risk from our network equipment
Current performance level	n/a
Incremental cost of proposal	Currently estimated at £25m, to be managed through an Uncertainty Mechanism
Target delivery date	31 December 2025
How will we measure success?	Through compliance with the relevant Licence Obligation

Figure 24: Engagement informing each proposal

Benefit/CVP/Output	Maximum difference	Willingness to pay	Acceptability	Stakeholder meetings	Online Community	Deliberative panel	Early draft consultation
Benefits							
1: Making it even easier for customers to contact us	✓		✓	✓		✓	✓
2: Providing additional support to businesses during power cuts	✓		✓	✓			✓
3: Improving the speed and quality of our responses to customers	✓		✓	✓			✓
4: Providing faster quotes and faster completion for new connections				✓			✓
5: Reducing the time it takes to complete emergency roadworks	✓	✓	✓	✓	✓		✓
6: Increasing community-focused approaches to engagement			✓	✓			✓
7: Collaborating more closely with other utilities			✓	✓		✓	✓
8: Doubling investment in referral networks			✓	✓		✓	✓
9: Expanding the reach of our Priority Services Register	✓		✓	✓	✓	✓	✓
10: Creating an innovation fund to ensure no one is left behind			✓	✓	✓	✓	✓
11: Supporting customers in fuel poverty	✓		✓	✓	✓	✓	✓
12: Developing new customer advisory panels			✓	✓	✓	✓	✓
13: Home welfare visits for electricity users in vulnerable circumstances experiencing long-duration power cuts	✓	✓	✓	✓			✓
14: Introducing all-colleague training for vulnerable circumstances and mental wellbeing				✓			
15: Reducing the number of power cuts	✓	✓	✓	✓	✓	✓	✓
16: Reducing the duration of power cuts	✓	✓	✓	✓	✓	✓	✓
17: No 'worst-served' customers by the end of ED2	✓	✓	✓	✓		✓	✓
18: Improving reliability for electricity users in vulnerable circumstances	✓	✓	✓	✓		✓	✓
19: Improving flood protection			✓	✓		✓	✓
20: Improving our management of trees near overhead lines			✓	✓		✓	✓
21: Increasing cyber resilience	✓		✓	✓	✓	✓	✓
22: Maintaining resilience in a changing climate				✓			✓
23: Making electricity in high-rise buildings safer			✓	✓	✓	✓	✓
24: Delivering safety campaigns			✓	✓		✓	✓
25: Increasing safety education			✓	✓			✓
26: Improving overhead line safety			✓	✓			✓
27: Helping customers connect low carbon technologies	✓	✓	✓	✓		✓	✓
28: Removing constraints for renewables	✓	✓	✓	✓			✓
29: Establishing a new community energy fund	✓	✓	✓	✓	✓	✓	✓
30: Unlooping customers' power supplies			✓	✓		✓	✓
31: Providing a decarbonisation advice service	✓	✓	✓	✓	✓	✓	✓
32: Reducing our business carbon footprint	✓		✓	✓			✓
33: Reducing leakage from oil-filled cables			✓	✓		✓	✓
34: Removing overhead lines in beauty spots			✓	✓	✓	✓	✓
35: Reducing losses from the network			✓	✓		✓	✓
36: Reducing emissions of potent greenhouse gases from equipment			✓	✓			✓
37: Making our sites havens for wildlife			✓	✓	✓	✓	✓

Benefit/CVP/Output	Maximum difference	Willingness to pay	Acceptability	Stakeholder meetings	Online Community	Deliberative panel	Early draft consultation
Consumer Value Propositions							
CVP1: Smart Street: Reducing cost and carbon for customers	✓	✓	✓	✓	✓	✓	✓
CVP 2: CLASS: Balancing the GB grid in a cheaper, lower carbon way	✓	✓	✓	✓	✓	✓	✓
Outputs							
O1: Maintaining high levels of competition in connections in the North West							
O2: Improving network health			✓	✓		✓	✓
O3: Measuring and reporting short power cuts							
O4: Improving telecommunications resilience			✓	✓			✓
O5: Investing in Electricity System Restoration readiness				✓			✓
O6: Keeping rural transformers safe			✓	✓			✓
O7: Enhancing security at major sites			✓	✓			✓
O8: Improving safety of underground cable pits				✓			✓
O9: Carrying out proactive safety checks on cut-outs				✓			✓
O10: Complying with new legislation on PCBs				✓			✓

4.8 Measurement and accountability

For each benefit and output we have described how we will measure success in each table alongside each entry throughout section 4.

Each of these measurements not covered by our legal requirements or licence obligations will sit within one of our six strategic scorecards which we will develop and report against in ED2 in conjunction with stakeholders.

As set out in section 8, the benefits and outputs in our plan will be measured through mechanisms including output delivery incentives (financial and reputational) and price control deliverables as well as licence obligations.

Stakeholders will have a role in holding us to account against these scorecards, checking our progress and scrutinising our reports via the following panels and groups as described in our ED2 Engagement Strategy (Annex 31).

Figure 25: Strategic scorecards

Scorecard	How stakeholders will hold us to account
1. Distribution System Operation	*NEW* DSO panel
2. Customers in vulnerable circumstances strategy	Customer in vulnerable circumstances stakeholder advisory panels (delivery and strategic) *NEW* Customer panel
3. Environment Action Plan	Sustainability stakeholder advisory panel
4. Connections	Connections expert panel
5. Diversity and inclusion	Chief Executive stakeholder advisory panel
6. Whole systems	Regional stakeholder groups working together including • Utilities Together (North West utilities) • Whole Transport Plans (eg. Cumbria Transport Infrastructure Plan) • Whole Energy Systems (Decarbonisation pathways with Cadent Gas and local authority partners) • Local Area Energy Plans

4.9 Significant projects

The most significant projects identified to date include the following, all of which are likely to cost at least £2m in ED2, and each of which is covered by a specific accompanying Engineering Justification Paper (EJP). For each site which is shared across both distribution and transmission, we have asked National Grid to review the associated EJPs.

We are currently consulting on whether to accelerate a sub-set of these projects into ED1 as part of our Green Recovery programme along with other initiatives. These projects will help to support the transition to Net Zero and economic recovery from the effects of COVID-19.

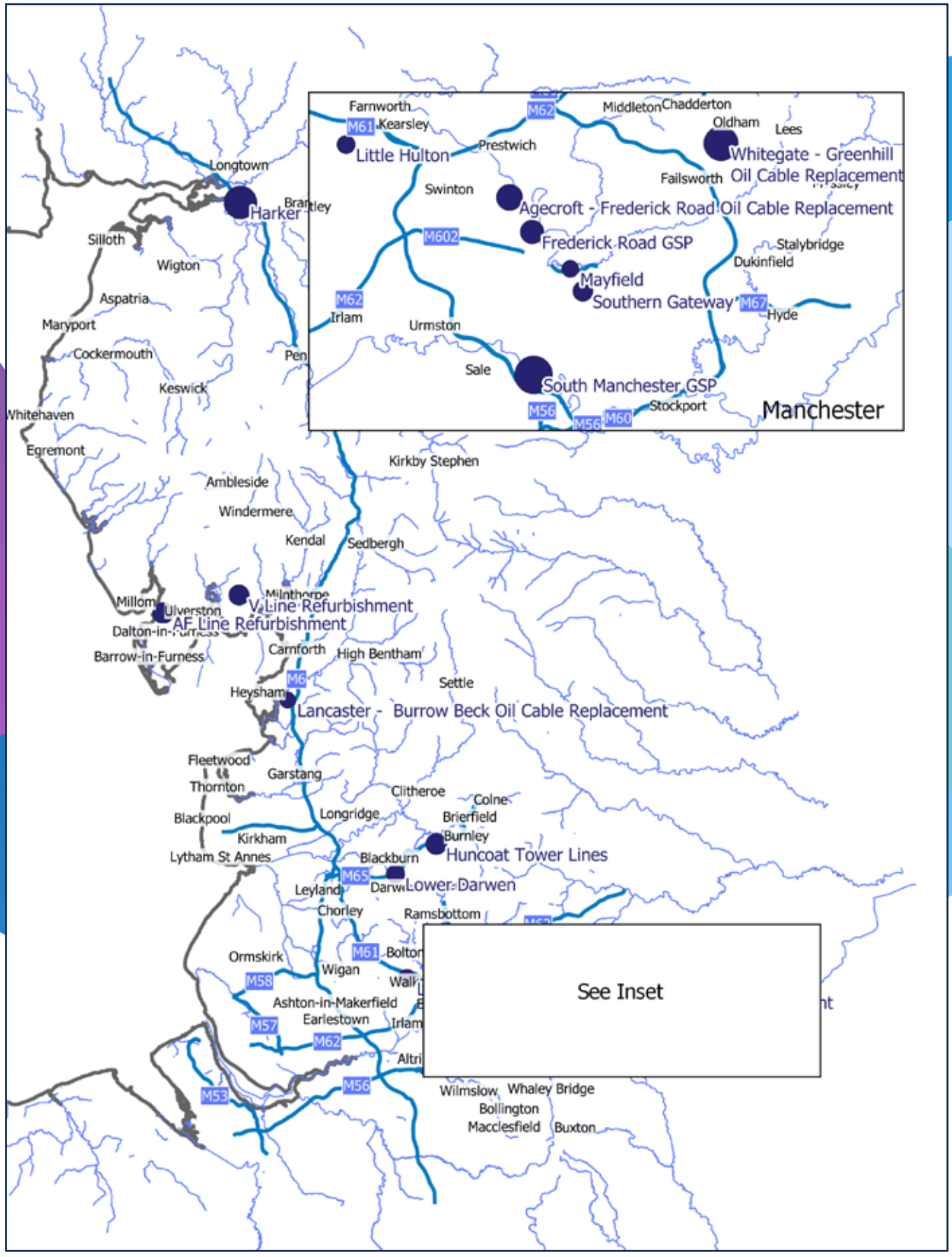
Figure 26: Significant projects and costs

Project and driver	Approx. cost £m
Little Hulton (Manchester). Reinforcement by upgrading cables and replacing the 33kV transformers to accommodate demand growth in north west Manchester.	3.5
Frederick Road GSP (Salford). Replacing current 132kV transformers with larger units and increasing the size of the overhead line circuits to cater for demand growth in Manchester and Salford.	5.9
Southern Gateway (Manchester). Establishing a new primary substation in South Manchester to cater for forecast demand growth and give greater network flexibility.	4.3
Northern Gateway (Manchester). Establishing a new primary substation in North Manchester to cater for forecast demand growth and give greater network flexibility.	4.6
Mayfield regeneration (Manchester). Establishing a new primary substation in Central Manchester to cater for forecast demand growth and planned inner city regeneration activities.	3.1
Lower Darwen (Lancashire). Rearrangement of the 132kV feeding arrangements which will add more 132kV switchgear at the site. This will manage voltage problems under fault conditions and therefore ensure customers receive correct voltage levels at all times.	RIIO-ED2 1.8 RIIO-ED3 1.8 Total 3.6
South Manchester GSP. The 132kV switchboard and associated plant is at the end of its useful life and will be replaced. This will improve the reliability of supply in the south Manchester area.	RIIO ED1 0.2 RIIO ED2 18.7 RIIO ED3 1.0 **Total 19.9**
Harker GSP (Carlisle)[1]. National Grid will replace their plant on a shared 132kV switchboard in the ED2 period. We will need to divert our circuits to connect to the new plant.	RIIO ED1 0.5 RIIO ED2 21.8 **Total 22.3**

1 Where two companies have switchgear connected together to permit electricity to pass from one to another this is known as a shared site. Each company owns their own assets and where a common asset needs replacing this needs both the site owner and the second company to work together to replace their respective equipment.

Project and driver	Approx. cost £m
Lancaster – Burrow Beck 33kV oil cable replacement. The 33kV circuits that provide supply to these areas are old and require replacement. They are filled with oil and pose an environmental risk when they fail. They currently are not reliable. New solidly insulated cables will be used to replace the old cables. This will improve reliability and reduce the risk to the environment to nothing. We will also improve the design of the cable layout, improving reliability to our customers.	3.14
132kV Steel Tower line refurbishment: AF line (South West Cumbria). This line of towers is part of a ring system providing supplies to the west of Cumbria. It is exposed to year round corrosion and severe weather as it is very near the coast. This causes the towers, conductor and insulators to corrode. We will carry out a programme of replacing parts of the line which are no longer safe to have in service, therefore improving the reliability of the circuits and making them safe.	3.6
132kV Steel Tower line refurbishment: V line (South Cumbria). This line of towers is also part of the same ring system as the AF line, providing supplies to the west of Cumbria. It experiences the same weather as the AF line with the same effects. We will carry out a programme of replacing parts of the line which are no longer safe to have in service, therefore improving the reliability and safety of the circuits.	5.1
132kV Oil Cable Replacement Whitegate GSP to Greenhill BSP 1 and 2 (Oldham). Greenhill BSP is fed from two 132kV oil cables which are obsolete and pose both a reliability and environmental risk. We will replace these cables with solidly insulated cable improving reliability and removing the environmental risk.	7.2
132kV Oil Cable Replacement Agecroft BSP to Frederick Road BSP 1 and 2 (Salford). Frederick Road has three circuits feeding it at 132kV. Two of the feeders from Agecroft BSP are oil cables which are obsolete and pose both a reliability and environmental risk. We will replace these cables with solidly insulated cable improving reliability and removing the environmental risk. Note: this project also provides increased capacity to the site and is related to the transformer replacement above.	4.6
33kV Tower Circuits in the Huncoat Area HA, HC and HL. Three 33kV tower lines in the Huncoat area of East Lancashire require intervention because of condition and third-party issues. We propose to underground the circuits removing the need for maintenance and solving the third-party issues.	4.2
Bredbury Harmonics Mitigation. Higher levels of harmonics have been identified in the Bredbury area of Stockport. This is due to multiple contributions of supply distortion generated by connected loads across the area. Harmonics cause interference to the supply quality and can damage appliances connected to the supply. We will install filters to remove the effects of the distortions created by the harmonics thus ensuring a quality supply to our customers.	3.1
132kV Cumbria Ring. We provide supplies in the Cumbria area from our 132kV network operating as a 'ring'. The Cumbria area has great potential for the connection of additional generation which may require us to upgrade these circuits in the future. As this need is not certain, we have excluded it from our baseline forecast but have included an assessment of the likely scope of work of this project should it be needed in RIIO-ED2.	42.6

Figure 27: Significant projects map



In this section

Section 5

Justification

We have followed a rigorous process to justify our proposals, thoroughly testing feedback from customers, consumers and stakeholders. The net social benefit of our plan is more than £1.2bn. The detail that sits behind this thorough and high quality justification process is detailed in Annex 1.

Section 9 and Annex 31 on our engagement strategy, as well as Annex 1 on our robust triangulation show the lengths we went to in order to understand customers' and stakeholders' wants and needs to input into this plan. But just because customers and stakeholders tell us they want something – even if they are willing to pay for it through their energy bills – doesn't necessarily mean we are best placed or should deliver it.

Using additional analysis we are taking our responsibility for efficiency and value for money seriously ensuring that not only is the detail in our plans well evidenced but that the decision-making around it is also well justified.

We have assessed our plans against the most appropriate of the following methods to ensure that they are justified:

1. Cost Benefit Analysis (CBA) & Engineering Justification Papers (EJPs).
2. Social Return On Investment.
3. Direct customer benefit in £.
4. Full triangulation.
5. Willingness to pay.

We have also made a final assessment of whether we are the best placed organisation to deliver the commitment. Justification for levels of ambition and factors leading to constraints on ambition are detailed in sections 1.9 and 1.10 of Annex 1.

5.1 Our six-step justification process

5.1.1 Cost Benefit Analysis and Engineering Justification Papers

Cost Benefit Analysis (CBA) was introduced in ED1 and enables the monetised evaluation of a range of different options against a baseline position which could be 'do nothing' or 'business as usual'. The benefits are pre-defined and include Customer, Safety, Environmental and Financial Impacts. CBAs also work over different time periods so we can check the best options in the long term.

For ED2, these have been supplemented with Engineering Justification Papers which are narrative documents similar to the business cases we would develop internally. They allow us to look in more detail at the need or problem we are trying to solve, the options available to resolve it and the decision-making process that has led us to our proposed solution. Where there are a range of different solutions available, the CBA guides us to which one offers best value for customers.

Ofgem have published guidance with examples of the kind of circumstances in which they would expect a CBA and/or a EJP to be produced which we have followed as set out in Annex 18: Our approach to Engineering Justification Papers (EJPs) & Cost Benefit Analysis (CBAs).

The benefits measurement outputs obtained from CBA are considered to have a very high materiality and take precedent when triangulated with a range of other measurement approaches. However, the CBA model is quite narrow in its assessment of benefits as, with the exception of valuing carbon savings, it only looks at the direct impacts of the action we are considering.

As a consequence, we have supplemented this approach with other forms of analysis which are particularly helpful when we are impacting more widely on customers lives or generating wider social benefits which wouldn't be captured within the CBA model.

5.1.2 Social Return On Investment

Social Return On Investment (SROI) is the monetary value associated with positive outcomes received, and costs avoided by society, because of a given initiative.

We used SROI specialists Economic Insight to support the measurement of SROI for 35/47 of Electricity North West's ED2 proposals, aligned to a national measurement framework adopted by all DNOs.

Each proposal that has had SROI measurement applied is presented in this document with a total net economic benefit per £ spent multiplier, which represents the total NPV (all benefits minus all costs), divided by the cost of the initiative, giving an indication of total value for money.

To provide an indication of how positive the social return multipliers reported in this document are, we've assigned a colour-coded status. As part of this process we have compared forecasted ED2 SROI to the average performance of similar activities achieved in ED1.

Proposals with a negative (below zero) net economic benefit multiplier warranted additional scrutiny and justification, before we proceeded with our proposed level of ambition. In some cases, we found that we were not able to fairly or accurately measure the full range of benefits through the SROI methodology. In other cases, investment is justified despite a poor SROI due to the investment being required to meet our statutory license obligations.

Due to SROI taking into consideration a wider range of values that enable a more holistic benefit measurement than willingness to pay, we attributed a high materiality to this output in our overall assessment and justification of investment. See Annex 19: Social Value Measurement.

5.1.3 Direct customer £ benefit

Some of our ED2 investments will enable customers to directly benefit from financial savings on their energy bills. During our engagement programme we heard that the affordability of consumers' bills is a key strategic priority, therefore direct financial savings were of high materiality in justifying the level of ambition proposed in our plans. The financial benefit to customers is expressed as a £ per customer, per year, and applies to both our CVPs.

5.1.4 Full triangulation

Where 'enhanced engagement' is provided as part of the justification for the ambition set out in our plan, it indicates that the customer and wider stakeholder evidence base is robust, and of the rigour required to demonstrate the legitimacy of the decision made. Although customer and stakeholder support for our proposed investments (e.g. high acceptability scores) is very important, where possible, we have looked to complement this evidence with quantification of the benefits case.

5.1.5 Willingness to pay

We commissioned Accent and PJM Economics to conduct a programme of research exploring customers' priorities and willingness to pay for a range of possible service improvements/proposals ('attributes') to support the application of WTP values in cost benefit analysis and provide evidence to inform the content of the business plan.

Three lower level 'discrete choice experiments' and a package 'contingent valuation' (CV) exercise were designed to estimate WTP for a package of service improvements across all attributes as well as to derive values for individual attribute level improvements.

Rather than using an estimate of average WTP for specific proposals, a more cautious value has been modelled drawing on a cost increase that is acceptable to 80% of the customer base.

Feedback received from Ofgem in recent years has included an observation that willingness to pay is often used by networks to indicate that a financial benefit for customers had been achieved, where an activity/service costs less than customers' WTP.

Industry experts have asserted that while WTP is acceptable for establishing priorities, such calculations do not necessarily demonstrate that a genuine financial benefit has been achieved for customers. In response, where possible we have looked to enhance WTP data with a more holistic SROI benefits assessment.

5.1.6 Are we best placed?

For each of our proposals we have assessed whether or not we are best placed to deliver them. For our explicitly network-focused activities (including the vast majority of the benefits listed in section 4, all of our outputs 1-10 and both CVPs) it is clear that there is no one better placed than us.

For some other benefits in the plan, notably our proposed funds, we recognise that it may not be as obvious that we are the best-placed organisation to deliver. We recognise that these costs will go on bills and so asked customers and stakeholders who they thought was best placed. In each case evidence suggests that we are best placed to deliver due to the importance of the issue, e.g. fuel poverty, and the lack of other systematic support. Customers have told us that they are willing to pay for these funds through their energy bills.

5.2 Benefits and outputs justification

Our rigorous, open and transparent triangulation approach formed part of our four-step justification process. All our investment proposals, encapsulating 37 benefits, two CVPs and 10 outputs, are supported by a high-quality triangulation of customer and stakeholder feedback, the detail of which is set out in Annex 1.

During our engagement we heard a consensus view on many of our proposals; however, in some cases we also heard divergent views and expectations. Even in cases where a majority favoured one course of action, in no cases did we observe total agreement or 100% acceptability of our proposals. In this regard, all business plan proposals represent some form of compromise and are constrained to some degree.

To support our justification approach, wherever possible, we complemented triangulation with quantitative benefits measurement. Economic Insight supported a comprehensive assessment of the social value generated by 35 of our 47 ED2 deliverables. The modelling approach adopted was aligned to a national social value framework developed by Sia Partners, government best practice and academic guidance.

The Total Net Present Value of these proposals which considers all benefits (financial and social) minus all costs over a 5-year period, excluding WTP values is £1.2bn. Out of the 35 proposals modelled, 15 achieve significantly higher than average net economic benefit compared to our ED1 internal benchmarks, indicating excellent value for money.

In some cases, a strong net economic benefit per £ spent multiplier, justified a higher level of ambition than we had originally set out in our draft plan. An example of this is B37: making our sites havens for wildlife, where 45% of our Plugged In Public Panel wanted to see greater ambition from us. A high multiplier (x19) influenced our commitment to scale up this programme and a strategy to target biodiversity improvements in communities with greater concentrations of fuel poor customers, where the societal benefit will be greater.

In other cases, a lower multiplier enabled us to change course and adapt our plans. An example of this is B29: Establishing a new £1m annual Powering our Communities fund. We used SROI forecasting to re-calibrate the design of the fund so that a greater weighting of investment will be directed towards community energy projects which return the highest societal benefit, thus increasing the value returned to bill payers.

Where alternative justification existed, we opted to proceed with investments with a lower net economic benefit per £ spent multiplier. This includes CVP1: Smart Street – reducing cost and carbon for customers. Here we applied the options set out within the Smart Street EJP to Ofgem's CBA model, which measures the costs and benefits accruing over a longer period (45 years) than the social value framework (five-10 years). This enabled us to test specific upsizing options to determine the most ambitious proposal which could be cost-justified. In addition, positive support from customers in our willingness to pay research enhanced our justification.

Proposals with a negative (below zero) net economic benefit multiplier warranted additional scrutiny and justification, before we proceeded with our proposed level of ambition. We were not able to fairly or accurately measure the full range of benefits for some benefits or outputs using this method. Examples of this include B26: Improving overhead line safety and Output 5: Investing in Electricity System Restoration readiness. Where this was the case investment has been primarily justified through a requirement to meet our statutory licence obligations.

5.3 CVP justification

Our CVPs are detailed in section 4.6 and also covered in Annexes 15A and 15B. We included Smart Street in our draft submission and have now added another CVP for CLASS with significant benefit with no extra funding request. At no cost but making a return to customers the justification for CLASS is self-evident and our justification for Smart Street is also clearly set out in section 5.3 and Annex 1 (triangulation). As part of our justification process, below we also highlight two potential CVPs that we discounted, showing the effectiveness of our process to drive value for consumers in the most efficient way.

5.3.1 Smart Street

We are including Smart Street as a Whole System CVP. Smart Street technology manages network voltage so that customers' appliances perform more efficiently, reducing customers' energy consumption. By controlling the output voltage of our distribution transformers, the Smart Street project will provide the following benefits to our customers:

1. A reduction in energy consumption, which potentially translates to a reduction in the customer's electricity bill.
2. Releasing capacity on the network leads to a quicker connection process for low carbon technologies (LCTs), facilitating a wider adoption.
3. An overall reduction in carbon emissions due to a reduction in energy consumption, reinforcement and technical losses.

Smart Street provides significant support for customers in vulnerable circumstances, particularly those in fuel poverty and clearly goes beyond Ofgem's baseline expectations (set out in Appendix 3 to Annex 1 of the RIIO-ED2 Methodology Decision).

Utilising a Social Return On Investment (SROI) approach to articulate the wider or societal benefits to consumers shows that the benefits of Smart Street clearly exceed the minimum level of value to consumers per accepted CVP proposal.

Application of the Smart Street system has been proven to produce a reduction in customers' energy consumption of between 5% and 8%. We calculate that Smart Street would save Profile Class 1 customers up to £69.48 and Profile Class 2 customers up to £107.24 in bill savings each year.

In our Social Return On Investment calculations we have used a prudent benefit of £39.27, the average bill saving enabled for Profile Class 1 customers with low, medium and high usage. The bill impact of the costs of deploying Smart Street will be approximately £0.16 per year for an individual customer.

Therefore, the direct customer benefit for the 250,000 customers who will have Smart Street rolled out on their network is estimated to be £39.11 per year on average.

5.3.2 CLASS

The CLASS CVP is also a Whole System CVP and has a financially quantified net present value (NPV) of £19.6m, plus additional qualitative benefits such as carbon reduction.

CLASS is a proven technology that provides a fast response service to NGESO and is used multiple times a day along with or instead of other providers. Where CLASS is used instead of other providers this is because it was judged a more economic and efficient option by NGESO to use CLASS over alternatives.

CLASS is a low carbon whole system approach to enabling Net Zero operation which is not business as usual for DNOs and is not mandated to be undertaken in ED2.

We are not attaching a specific cost to this CVP because we will use the technology in a competitive market and therefore we are happy to fund expenditure ourselves rather than ask Ofgem to provide funds. However, to enable CLASS we would like Ofgem to continue the ED1 treatment of CLASS revenues so that there is an incentive for other DNOs to adopt the CLASS technology.

The CLASS project offers a significant value proposition for customers with the 50% share of any potential revenue earnt plus carbon savings along with other qualitative benefits being delivered.

5.3.3 Single National PSR

We are aware that multiple PSRs now exist across utilities which can be confusing for customers. We considered a CVP to allow us to work with other sectors to create a regional and, potentially, a national service with a single point of contact to simplify the process for customers and avoid the cost of having multiple systems holding similar information.

We are already leading the development of a single PSR across sectors for all vulnerable consumers. We have partnered with Auriga Services who launched a nationwide PSR portal in October 2020 and led a trial with our regional counterparts (Northern Gas Network, United Utilities and Cadent Gas) via our Utilities Together partnership including customer data from our strategic partner Citizens Advice Manchester.

To create a project that would meet all of the criteria for a CVP we judged that we would need to be able to demonstrate a single national PSR in ED2 with multiple energy retailers. Our engagement with various parties across the energy and wider utilities sector is continuing, but at this stage feedback indicates that there could be major barriers to developing the single national PSR with all the potential partners we would need to generate the scale of project required. Therefore at this time we are not able to generate a CVP proposal for this initiative.

Instead we are focusing on developing greater coordination within our operating region through our Utilities Together initiative. Although not a single national PSR register, this looks to ensure that customers only need to update their details once rather than with three separate providers in the North West. Our longer-term aim is to demonstrate that a single PSR can share information between utilities and third sector support providers to improve the service for registering customers.

5.3.4 Most likely solutions in the electrification of heat

As electricity customers seek to decarbonise their heating, the UK Government predicts that by 2028 there will be an increase of around 600,000 Heat Pumps (HPs) per year on the electricity distribution network. There is currently no established method for managing the effects of low carbon heat demand and thereby avoiding the need for network reinforcement.

Electricity networks need to develop a new understanding of how heat demand will manifest on the network. Due to low levels of penetration currently, we need to examine options for simulating heat demand and investigate alternative methods for assessing the impact of heat, for example, through trial-assisted modelling as well as building a new understanding of customer behaviour and expectations around heat.

Stakeholder groups, including in particular the Greater Manchester Energy Innovation Challenge Group, are keen to explore how addressing key knowledge gaps could accelerate the take-up of low carbon technologies such as heat pumps to help accelerate the transition to Net Zero. We considered that work to address these knowledge gaps would address key whole system issues and deliver significant long-term customer benefit.

Having evaluated the potential work we could support in this area against the CVP criteria, we have decided to develop a Strategic Innovation Fund (SIF) application instead as the most appropriate way to progress.

5.4 Justification summary for every proposal

This table shows each of the justification methods we have used to test each benefit and the two CVPs in our plan. For full information and justification for each, see Annex 1.

Figure 28: Summary of our proposals and their justification

Benefit number	EJP/CBA*	Social return multiplier	Enhanced engagement (triangulated)	Willingness to pay	Are we best placed?
Meeting our customers' needs					
1: Making it even easier for customers to contact us		✓ x25	✓	✓ 2019	✓
2: Providing additional support to businesses during power cuts		✓ x54	✓	✓ 2019	✓
3: Improving the speed and quality of our responses to customers		✓ x0	✓		✓
4: Providing faster quotes and faster completion for new connections		✓ x0	✓		✓
5: Reducing the time it takes to complete emergency roadworks		✓ x12	✓	✓ £1.47	✓
6: Increasing community-focused approaches to engagement		✓ x13	✓		✓
Supporting electricity users in vulnerable circumstances					
7: Collaborating more closely with other utilities		✓ x39	✓		✓
8: Doubling investment in referral networks		✓ x10	✓		✓
9: Expanding the reach of our Priority Services Register		✓ x12	✓	✓ 2019	✓
10: Creating an innovation fund to ensure no one is left behind			✓		
11: Supporting customers in fuel poverty		✓ x6	✓		✓
12: Developing new customer advisory panels		✓ x2	✓		✓
13: Home welfare visits for electricity users in vulnerable circumstances experiencing long-duration power cuts		✓ x1	✓	✓ £0.29	✓
14: Introducing all-colleague training for vulnerable circumstances and mental wellbeing		✓ x1	✓		✓
Supporting electricity users in vulnerable circumstances					
Delivering a reliable network					
15: Reducing the number of power cuts		✓ x–1	✓	✓ £1.26	✓
16: Reducing the duration of power cuts		✓ x0	✓	✓ £0.85	✓
17: No 'worst-served' customers by the end of ED2	✓	✓ x0	✓	✓	✓
18: Improving reliability for electricity users in vulnerable circumstances	✓	✓ x–1	✓	✓ £0.15	✓

Benefit number	EJP/CBA*	Social return multiplier	Enhanced engagement (triangulated)	Willingness to pay	Are we best placed?
Delivering a resilient network					
19: Improving flood protection		✓ x115	✓		✓
20: Improving our management of trees near overhead lines	✓	✓ x0	✓		✓
21: Increasing cyber resilience		✓ x10	✓		✓
22: Maintaining resilience in a changing climate	✓		✓		✓
Keeping our communities safe					
23: Making electricity in high-rise buildings safer	✓	✓ x0	✓		✓
24: Delivering safety campaigns		✓ x37	✓	✓ 2020	✓
25: Increasing safety education		✓ x46	✓	✓ 2020	✓
26: Improving overhead line safety	✓	✓ x–1	✓		✓
Environment					
Leading the North West to Net Zero					
27: Helping customers connect low carbon technologies	✓	✓ x8	✓	✓ £0.51	✓
28: Removing constraints for renewables		✓ x–1	✓		✓
29: Establishing a new community energy fund		✓ x5	✓	✓ £1.32	✓
30: Unlooping customers' power supplies	✓	✓ x1	✓		✓
31: Providing a decarbonisation advice service			✓	✓ £0.94	✓
Improving our direct environmental impact					
32: Reducing our business carbon footprint	✓	✓ x–1	✓	✓ 2020	✓
33: Reducing leakage from oil-filled cables	✓		✓		✓
34: Removing overhead lines in beauty spots		✓ x3	✓	✓ 2019	✓
35: Reducing losses from the network	✓	✓ x–1	✓		✓
36: Reducing emissions of potent greenhouse gases from equipment	✓	✓ x–1	✓		✓
37: Making our sites havens for wildlife		✓ x19	✓		✓

Benefit number	EJP/CBA*	Customer £ benefit	Social return multiplier	Enhanced engagement (triangulated)	Willingness to pay	Are we best placed?
Consumer Value Propositions						
CVP1: Smart Street: Reducing cost and carbon for customers	✓	£39.27 – selected	✓ x0	✓	✓ £0.94	✓
CVP 2: CLASS: Balancing the UK grid in a cheaper, lower carbon way		£0.59 – every customer	✓ x19	✓		✓

*Cost Benefit Analysis/Engineering Justification Paper

In this section

Section 6

Efficient delivery

Our focus is to deliver the plan our region wants and needs, lead the way to Net Zero and keep bills low for customers. Our plan is to invest baseline costs of £1.678bn from 2023-2028 increasing investment compared to ED1 by 24%. We'll use innovation and efficiency to keep bills low and continue to deliver outstanding value.

Following ‘what’ we are going to deliver covered in section 4, and ‘why’ we will deliver it in section 5, this section explains ‘how’ we will deliver our plan in the most efficient way. This includes our cost forecasts, efficient delivery, load-related expenditure, how we manage network asset risk, our use of data and digital technology, innovation, delivery strategy, procurement and workforce resilience.

6.1 Cost forecasts

This section describes the cost forecasts included within our Final RIIO-ED2 Business Plan compared to the equivalent levels in the current period (RIIO-ED1) and the values included in our Draft Business Plan published in July 2021, using the prime regulatory cost reporting categories. All data in section 6.1, including tables, is taken from S1 – Summary of C1s in the Business Plan Data Template submitted to Ofgem.

As RIIO-ED1 covers a different time period (eight years as opposed to the five of RIIO-ED2), we have converted to an equivalent basis by taking 5/8ths of our total forecast for the period. This shows what a 'roll forward' of ED1 at current investment levels would look like. The costs below are also presented on a net basis, inclusive of forward efficiency assumptions.

In each section, we give a brief description of the activity and the main reasons for changes to RIIO-ED1. This section goes on to set out how we have ensured the efficiency of these cost forecasts and how we plan to deliver the work contained within.

Total expenditure (Totex)

The table below compares total expenditure for RIIO-ED2 with the Draft BP and the RIIO-ED1 equivalent 'roll-forward' level.

Our RIIO-ED2 Final Business Plan represents a significant increase in activity as we respond to the challenges of the Net Zero transition, however our stretching assumptions on efficiency and assumed use of future uncertainty mechanisms have reduced the baseline increase to 24% over RIIO-ED1 levels.

Our plan also includes for the widescale rollout of two programmes unique to ENWL and based on proven innovation. These (Smart Street and LineSIGHT) are identified separately to ensure appropriate like-for-like comparison with other DNOs' forecasts.

Figure 29: Comparison of our total expenditure (totex)

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Draft Business Plan (£m)	RIIO-ED2 Final Business Plan (£m)	ED1 vs ED2 FBP Change (£m)	ED1 vs ED2 FBP Change (%)
Load-Related Expenditure	73.7	211.9	137.9	64.1	87
Asset Replacement and Refurbishment	245.9	372.3	288.7	42.7	17
Other Non-Load Expenditure	201.2	336.8	253.1	51.9	26
High Value Projects (HVPs)	-	-	21.3	21.3	100
Non-Operational Capex	57.8	85.9	90.2	32.4	56
Network Operating Costs	288.3	323.3	295.5	7.2	3
Closely Associated Indirects	260.4	345.8	338.2	77.8	30
Business Support	178.9	227.4	225.8	46.9	26
Other Costs	36.6	27.9	27.6	-9.0	-25
Total Baseline Costs	**1,342.9**	**1,931.3**	**1,678.3**	**335.3**	**25**
Bespoke Programmes		102.0	112.5		
Total Costs		**2,033.3**	**1,790.8**	**440.5**	**33%**

The following pie charts show the makeup of our cost base in RIIO-ED1 and how for RIIO-ED2 the broad makeup of the cost base is similar, with an increasing level of load-related expenditure to provide capacity in support of the transition to Net Zero and also increased replacement and refurbishment required to maintain the level of risk of asset failure across the network as assets age. The network operating costs for maintaining and repairing the network are reducing steadily with ever improving efficiency as a proportion of the total. Additional activities and support for the increased overall expenditure programme and growing business mean that the proportions of closely associated indirects and business support costs remain fairly constant.

Across the five areas of the cost base there are new, efficient costs for new and additional activities that have been justified by the analysis summarised in section 5 and detailed in Annex 1. There are also additional costs required to enable delivery of the specific outputs required to meet the requirements of customers and stakeholders.

Figure 30: RIIO-ED1 cost base breakdown

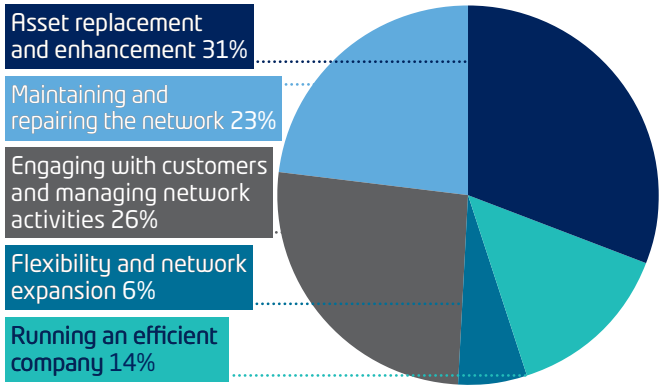
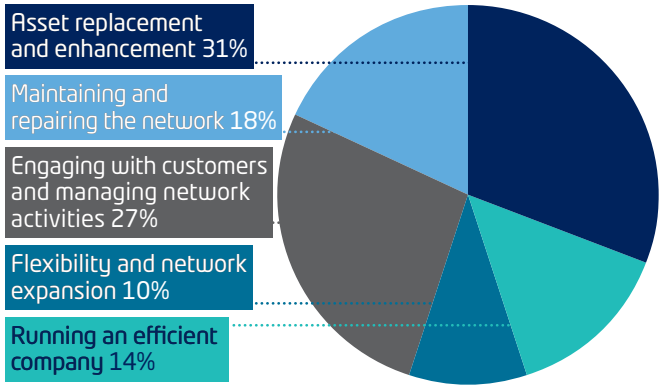


Figure 31: RIIO-ED2 cost base breakdown



6.1.1 Load-related expenditure

Figure 32: Comparison of our load-related expenditure

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Connections within the price control	12.2	29.2	17.1	141
Reinforcement (Primary Network)	32.1	19.1	-13.0	-41
Reinforcement (Secondary Network)	20.6	58.5	37.9	184
Fault Level Reinforcement	8.9	31.1	22.2	249
New Transmission Capacity Charges	-	-	-	-
Harker HVP	-	21.9	21.9	-
Total Load-related Costs	**73.7**	**159.7**	**86**	**87**

Load-related expenditure is that required to develop our network so that it can continue to meet the evolving needs of our customers, enabling them to connect to low carbon technologies without barriers and reach more ambitious regional Net Zero targets. As summarised in section 6.3 and detailed in Annex 3 the detailed modelling we have undertaken to predict what will be required to keep pace with the region's ambitions for decarbonisation and low carbon technology adoption shows a significant increase over ED1 due to the expected uptake of technologies such as electric vehicles and solar panels. However there remain significant uncertainties on the speed of the transition so we are proposing that differences to this forecast are managed through an Uncertainty Mechanism as set out in section 8.

Connections within the price control – This is the element of new connections costs that are socialised and paid for by all customers in line with the current connections charging rules. In general, customers requiring a new connection pay for the cost of it, but if we are required to reinforce our network at higher voltages to accommodate the request, then some of this cost is shared due to the likely future shared benefit of the additional capacity being created. Forecasting in this area is highly uncertain as it is based on customer behaviour and general economic conditions in the region, however we work closely with stakeholders including local authorities to identify likely growth areas. At present, there is also uncertainty regarding the lasting impact of the COVID-19 pandemic both in terms of the impact on economic activity but also with respect to the policy response and potential related stimulus measures.

Ofgem are also consulting on potential changes to the charging rules through the Access & Forward-Looking Charging Significant Code Review and this may result in changes to customer behaviour and hence the number of connection requests if, for instance, more of the costs are socialised. We have calculated the costs associated with Ofgem's 'Minded To' decision on this Significant Code Review. Ofgem's explicit instruction is that these costs should not be included within our base cost requirements and instead will be funded via an uncertainty mechanism. The details of this are reflected in section 8.

6.1.2 Asset replacement and refurbishment

The table below compares total expenditure for RIIO-ED2 with the RIIO-ED1 equivalent 'roll-forward' level:

Figure 33: Comparison of our asset replacement and refurbishment

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Asset Replacement	203.7	235.8	32.1	16
Refurbishment no SDI	19.7	24.2	4.5	23
Refurbishment SDI	22.5	28.6	6.1	27
Total Asset Replacement and Refurbishment Costs	**245.9**	**288.7**	**42.7**	**17**

Asset replacement and refurbishment is essentially renewing our existing equipment as it approaches the end of its operating life. This enables us to manage the risk of condition-based failures and consequent power cuts. Most of the investment in this area is on assets covered by the CNAIM methodology and falling within scope of the NARMs framework (see section section 6.4 for further details). Our detailed modelling of the deteriorating condition of our assets and the requirements to hold risk of failure constant are driving the increases in this expenditure. This programme includes refurbishing as well as replacing existing equipment. Refurbishing assets within the scope of NARMs is classed as SDI (Secondary Deliverable Incentive) and that on assets outside the scope 'no SDI.

6.1.3 Other Non-Load-Related Expenditure (NLRE)

Figure 34: Comparison of our other non-load-related expenditure

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Diversions	23.2	17.7	-5.4	-23
Civil Works condition driven	21.4	26.1	4.7	22
Operational IT and Telecoms	51	76.2	25.2	49
Legal, Safety & ESQCR	14.9	40.7	26.2	181
Flood Mitigation	8.3	3.5	-4.8	-57
Worst Served Customers (WSC)	1.3	20.6	19.3	1,485
Quality of Supply	31.4	19.4	-12.0	-39
Other	50.0	48.9	-1.1	-2
Total NLRE Other	**201.2**	**253.1**	**51.9**	**26**

Other non-load-related expenditure is other investment on our existing network for reasons other than end-of life renewal. This could be to improve the reliability or resilience of parts of the network, manage safety issues, maintain our substation buildings, or divert our assets if required to by changes in land use or permissions etc.

This category includes a number of our proposed Benefits and Outputs as set out in section 4.

Diverting our equipment – We are seeing a significant increase in diversions requirements based primarily on land agent activity. However, as it is difficult to forecast whether this activity will continue at these levels and whether government support at Land Tribunals will enable us to mitigate the costs being passed to energy consumers we have decided to remove these costs from our base and only pass to customers those costs that are actually incurred.

Operational IT and Telecoms – The key strategic focus of our Operational IT in ED1 has been the delivery of a new Network Management System (NMS). The new NMS facilitates delivery of future smart grid functionality, including the delivery of innovative DSO capabilities. Going forwards we build upon the NMS foundation layer as we develop our Operational IT to support flexibility markets and the deployment of these resources to manage constraints on the network. Our IT strategy describes the development of our Active Network Management systems and how we will utilise smart meter data to automatically operate and control the network configuration to provide maximum capacity to customers.

Managing the network's safety and environmental impacts – There is a significant increase in expenditure in this cost category as a result of the new safety programmes that we are introducing to address small rural transformers, underground cable pits, overhead line safety and cut-out safety. We are also continuing our programmes managing safety in high-rise buildings, fire protection for basement substations and for earthing. New programmes to address environmental issues and our own carbon footprint are also increasing costs in this category. We will continue with a proactive programme to reduce electrical losses in our equipment. This category also includes assumptions on costs associated with discharging our ongoing environmental and safety responsibilities in legislation such as contaminated

land remediation and other environmental liabilities. Our compliance driven programmes are described in Engineering Justification Papers in Annex 18. The costs of our programme to continue with the undergrounding of overhead lines in Areas of Outstanding Natural Beauty and National Parks will be consistent with current activity levels.

Improving resilience to extreme events – Our programme for flood protection will be smaller than our existing programme because the largest and highest risk sites have already been protected giving reductions in this cost category. Our programme for ED2 is based on delivering improvements at sites identified as potentially being at risk based on updated flood data from the Environment Agency and the latest climate change impacts assessment from the UK Climate projections 2018 (UKCP18).

Improving reliability and speed of restoration – Our Worst Served Customer and Quality of Supply programmes to directly address the service customers receive on our poorest performing circuits and also the quality of supply for those areas with high levels of vulnerability will drive an increase in expenditure dedicated to improving the reliability of the network compared to ED1.

6.1.4 Non-Operational Capex

Figure 35: Comparison of our Non-Operational Capex

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
IT & Telecoms (Non-Op)	32.5	34.2	1.6	5
Property (Non-Op)	5.5	12.0	6.5	119
Vehicles and Transport (Non-Op)	12.3	21.9	9.6	78
Small Tools and Equipment	7.5	22.2	14.6	194
Total Non-Op CAPEX	**57.8**	**90.2**	**32.4**	**56**

Non-Op Capex relates to the purchase of equipment that helps us operate the network but doesn't form part of the network itself, e.g. our vehicle fleet, offices, depots, and IT systems.

Figure 35 above compares total expenditure for RIIO-ED2 with the equivalent RIIO-ED1 roll-forward in the areas of;

- Maintaining and replacing our IT systems
- Investing in our buildings
- Replacing our vehicle fleet
- Investing in tools and equipment

There are a range of new activities to undertake in this cost category. Our commitments to decarbonise our operations contained in our Environmental Action Plan require significant investment in five depots to achieve Net Zero status. We will also incur significant increases in fleet replacement costs as we significantly expand our fleet of electric vehicles, even though the whole life costs of these vehicles will be lower than their internal combustion engine equivalents. New fault location, sensing and smart fuse equipment will be required to replace the first generation of high-tech service improvement equipment as it starts to come to the end of its life-cycle. The final driver of our costs is related to non-operational IT where the need to refresh and replace legacy systems, particularly to support the transition to DSO, are detailed in our Digitalisation Strategy, Annex 23, which includes further details of our forward plan including individual project proposals in this area.

6.1.5 High Value Projects (HVP)

Figure 36: Comparison of our High Value Project expenditure (HVP)

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
High Value Projects (HVPs)	-	21.3	21.3	100
Total Non-Op CAPEX	**-**	**21.3**	**21.3**	**100**

HVPs are specific projects which meet a minimum threshold for separate consideration within ED2. This threshold has not been set by Ofgem yet, but we have included our project at Harker 132kV substation within this category for ED2. This project is planned for a shared site with National Grid to increase the capacity in the North Cumbria area.

6.1.6 Network Operating Costs

Figure 37: Comparison of our Network Operating Costs expenditure

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Faults & ONIs	175.8	168.6	-7.1	-4
Tree Cutting	25.0	31.2	6.2	25
Inspections & Maintenance	53.9	69.2	15.4	29
Smart Metering	21.6	12.9	-8.7	-40
Other Network Operating Costs	12.0	13.5	1.5	12
Total Network Operating Costs	**288.3**	**295.5**	**7.2**	**3**

Network operating costs are those associated with the day-to-day running of the network, primarily relating to responding to faults and other emergencies, and carrying out the routine engineering activities that enable continued safe operation (eg inspecting our equipment and maintaining it on a regular basis).

We expect the volume of faults to fall slowly as we continue to maintain overall asset risk and target the weakest parts of the network. As part of our benchmarking exercise we have reviewed our unit costs against those reported by the other DNOs and adjusted them where appropriate to reflect our ambition to deliver at a competitive unit cost.

As we deploy new techniques to identify faults before they impact our customers this creates new activity to fix the network before the fault actually happens. This activity is supported by the costs for new tools and equipment shown in the previous section. Streetwork costs will also rise as a result in changing regulation that requires reinstatement to be guaranteed for five years instead of the current two years.

Increased costs for tree cutting are primarily to improve storm resilience and meet tightening safety standards as we start to adapt to the impacts of climate change.

As smart device populations grow quickly to support the automated and remotely controlled network essential for the Net Zero transition by enabling DSO operation, there is a small corresponding increase in the costs of inspecting and maintaining these high functioning devices. Another driver of increased inspection costs is the rise in home visits required to inspect metering positions that will no longer be undertaken by meter operators because of the switch to smart meters.

6.1.7 Closely Associated Indirects

Figure 38: Comparison of our Closely Associated Indirects expenditure

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Core Closely Associated Indirects (CAI)	192.8	263.5	70.7	37
Wayleaves	18.5	19.6	1.0	6
Operational Training	27.0	34.3	7.3	27
Vehicles and Transport	22.1	20.9	-1.2	-5
Total Closely Associated Indirects	**260.4**	**338.2**	**77.8**	**30**

Closely Associated Indirects relate to the activities directly associated with both the running of the network and the delivery of a significant investment programme. In terms of the former, this includes primarily managing our control and call centres.

Our customer contact centre is at the heart of all our engagement with the communities we serve across the North West and leads the ways we support customers in vulnerable circumstances. The involvement of the contact centre in half of all the new benefits in this business plan and the considerable steps in support of customers in fuel poverty and other vulnerable circumstances mean that there is a significant increase in expenditure in this area. Significant additional costs are incurred to extend and enhance the Priority Services Register. The costs of funds to support customers in fuel poverty and to ensure no one is left behind in the transition to Net Zero are also shown here. Other increases are the result of improvements in domestic connections service and improved communications for customers as well as the costs for new customer panels.

Our control room is the hub that drives the performance of the network. Whilst underlying costs are falling, there are two cost pressures that are reflected in control room expenditure forecasts. The increased investment programme drives more outage management for the control room to coordinate and the connected nature of all new equipment presents a growing commissioning requirement for control room staff. Developments in our Operational IT platforms to support our distribution system operation roles and facilitate the region's transition to Net Zero all also require significant control room involvement.

Good data is an enabler for the vast majority of our proposals and therefore the data management team that keep our records up to date are involved in many of the new investments we will be making in ED2. We have invested heavily in improving the quality of our asset data recently in preparation for the smart meter rollout and the development of our new Network Management System. This provides the opportunity for some cost savings in ED2 to be realised, despite our ongoing digitalisation activities. Our data strategy describes how we are sharing this information with a wide range of customers and other parties to enable innovation across the energy value-chain and can be found at Annex 21.

The costs for work to support investment delivery such as design, project and work management as well as providing a skilled workforce and their vital fleet are driven in part by the programme of work we have to deliver. We are expanding our training capacity to enable us to expand our workforce to meet the future delivery challenges as outlined in Annex 27 – Workforce Resilience Strategy.

6.1.8 Business support

Figure 39: Comparison of our Business Support expenditure

Item	RIIO-ED1 Actuals & Forecast (£m)	RIIO-ED2 Final Business Plan (£m)	Change (£m)	Change (%)
Core Business Support	76.8	101.1	24.3	32
IT & Telecoms Business Support	78.7	101.2	22.5	29
Property Management	23.4	23.6	0.2	1
Total Business Support Costs	**178.9**	**225.8**	**46.9**	**26**

Business support costs are those related to running our business. This includes our core functions such as HR & Finance, together with aspects including non-operational training and DSO costs. The rise in spending in this area is mainly down to establishing our DSO function including the costs of our support for community energy schemes and decarbonisation advice as well as the development of flexibility services markets.

Expanded smart networks require effective communications and enhanced costs of securing spectrum and radio sites are included here along with increases in IT running costs from a smarter network operation. The costs of increased cyber security requirements also add to ongoing IT costs.

A significant number of our new initiatives require support from our corporate functions driving an overall increase in costs. These include stakeholder engagement and community support activities including the creation of new vulnerable customer panels, expanding our referral networks and support for customers in fuel poverty. A larger network investment programme requires support from procurement and logistics and from our commercial functions in managing an expanded contractor base.

Our community outreach teams will be increasing activity associated with safety campaigns and education.

6.1.9 What drives the increase in expenditure compared to ED1?

Our business plan was assessed by Ofgem as the most efficient for ED1 and we are set to deliver all of the outputs in this period for a net 7.5% less than allowances, a saving of £141m.

From this efficient base we have identified around £95m of specific reductions against a roll forward of these ED1 expenditure levels including an ambitious ongoing efficiency assumption.

Additionally, our ED2 business plan includes further significant discounting, about £70m, on this efficient starting position which reduces the impact of future cost pressures. The reductions include flexibility discounts on reinforcement forecasts and innovation benefits built into business as usual such as fault level solutions and oil regeneration of transformers. The reductions also include the benefit of accelerating green recovery projects into ED1 that are funded without allowances.

Against a very efficient base this plan responds to our customers and stakeholders with growth driven by three macro factors:

1. The challenge of **decarbonisation** not only drives expenditure to provide additional network capacity but also requires us to maintain and replace more smart devices, to unloop services to enable customers to adopt low carbon technologies and to extend low voltage monitoring across the network.

These costs, together with our proposals on innovation, community energy support and reducing our own carbon footprint add approximately £55m to our base forecasts each year.

These costs have been significantly reduced by the estimated savings of distribution system operation activities for ED2 of £240m.

2. Responding to the **ambitions of our customers and stakeholders** we have included expenditure for reliability programmes, an enhanced vulnerability package, rolling out the innovative high-rise building monitoring technology and maintaining the overall level of network risk.

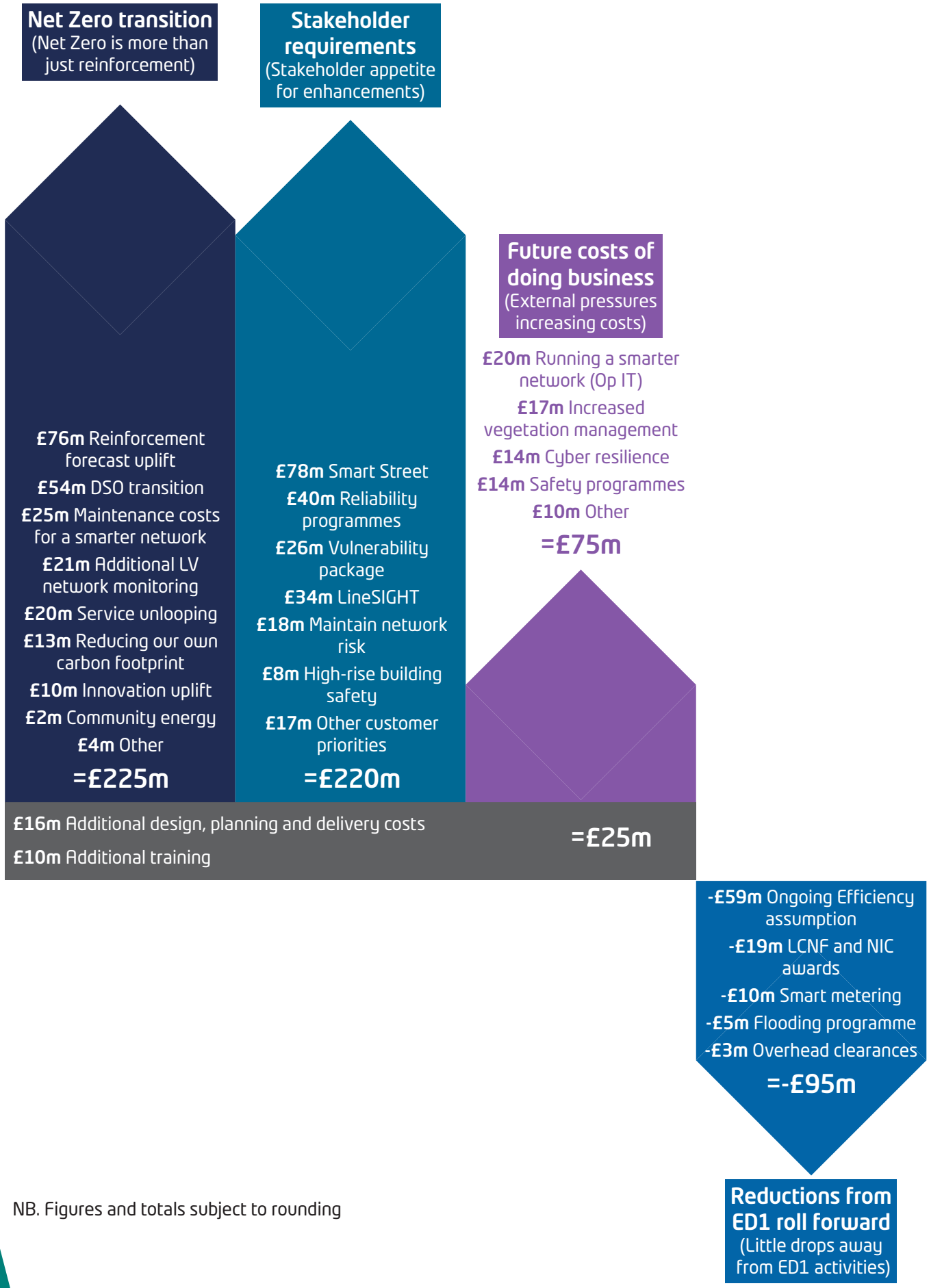
These costs add approximately £22m to our base forecasts each year. In addition, our bespoke programmes for Smart Street and LineSIGHT, which customers and stakeholders also strongly support, add a further £22m per year to the plan.

To deliver these increased programmes of work we need to increase our design, planning and work management capabilities, grow our workforce and train and upskill our colleagues. This adds an additional £5m per year to the plan.

3. Finally **changing regulations and obligations** increase the costs of carrying out our core activities. Examples include the costs of maintaining a smarter network, increases in vegetation management and increased cyber resilience. These costs add £15m per year to the plan.

Overall the net position is a 33% increase in expenditure when compared to the ED1 levels.

Figure 40: What drives the increase in expenditure?



NB. Figures and totals subject to rounding

6.2 Delivering efficiently

As described in the Track Record section 10, our customers benefit from high levels of performance from one of the most efficient DNOs in Great Britain, and therefore the world. With Ofgem determining the ED1 business plan was the most efficient of any DNO, the resulting cost allowances in RIIO-ED1 were, therefore, the most challenging of any DNO and during the period of the price review the business has steadily improved efficiency to enable enhanced investment in improved performance and significant reductions in prices. All data in section 6.2, including tables, is taken from S1 – Summary of C1s in the Business Plan Data Template submitted to Ofgem.

Building on this highly efficient underlying cost base, the business plan for RIIO-ED2 continues to set a leading benchmark level of efficiency. Our ongoing efficiency assumption of 1% per annum will drive continual improvement and further reductions across all aspects of the cost base. Unit costs for capital expenditure items have been independently reviewed and the efficiency of our asset replacement is demonstrated using a £ per risk point analysis.

The costs of new activities are priced using these efficient unit cost levels. Only the necessary expansion of the operating and overhead cost base to cover the additional efficient costs of the new activities has been added. Section 5 and Annex 1 demonstrate the robust tests applied to all additional activities and the individual justifications for each additional cost required to meet customer and stakeholder requirements.

6.2.1 Benchmarking our current costs

Crucial to ensuring that our plan is efficiently priced and the bill is as low as possible is to check our current cost performance. To do this, we have undertaken a comprehensive programme to assess our costs against those of other network companies. By benchmarking our costs in this way, we are able to see how efficient we are and make sure that we are competitively priced going forwards.–

To check our current efficiency position, we have repeated the approaches to cost assessment that Ofgem used to determine the level of efficient costs at ED1. Firstly, we re-ran the high-level ('totex', i.e. total expenditure) modelling based on data up to 2020 using expert external consultants, Oxera, to validate the findings. This involved looking at the total expenditure of different network companies over the RIIO-ED1 period to date and the results showed that our costs were around the upper quartile level and at the level that has previously been deemed 'efficient' by Ofgem.

We have supplemented this with our own detailed efficiency appraisals again re-using ED1 models as our basis and latest data up to 2020. This gives us the latest view of our relative efficiency in individual activity areas and areas to focus on in terms of setting stretching targets into the ED2 period. The outcome of this analysis was that our ED1 costs are 5% more efficient than the benchmark suggested by the models. These conclusions give us confidence that our starting costs are efficient whether looked at from a total level, or activity-by-activity.

We have achieved these levels of efficiency despite not being able to access some of the economies of scale of larger DNOs by being focused on driving innovative approaches throughout our business and working to a highly efficient business operating model. Annex 26 gives further context on the challenges of being the smallest DNO Group and also the value we bring to the sector as a whole.

Further details of our approach and the evidenced conclusions supporting the efficiency of our plan can be found in Annex 20. This also includes details of our benchmarking results and the relevant external reports noted in this section.

6.2.2 Ongoing efficiencies

Having established an efficient starting position for our costs, we have challenged ourselves to set stretching efficiency targets in the context of an increasingly onerous operating environment. Our main overarching assumption is that we will find ways to continually achieve further efficiencies and reduce costs to customers. This is in the form of an annual 'ongoing efficiency' assumption of 1% per annum (i.e. we forecast that, all things being equal, our costs will reduce by this factor each year).

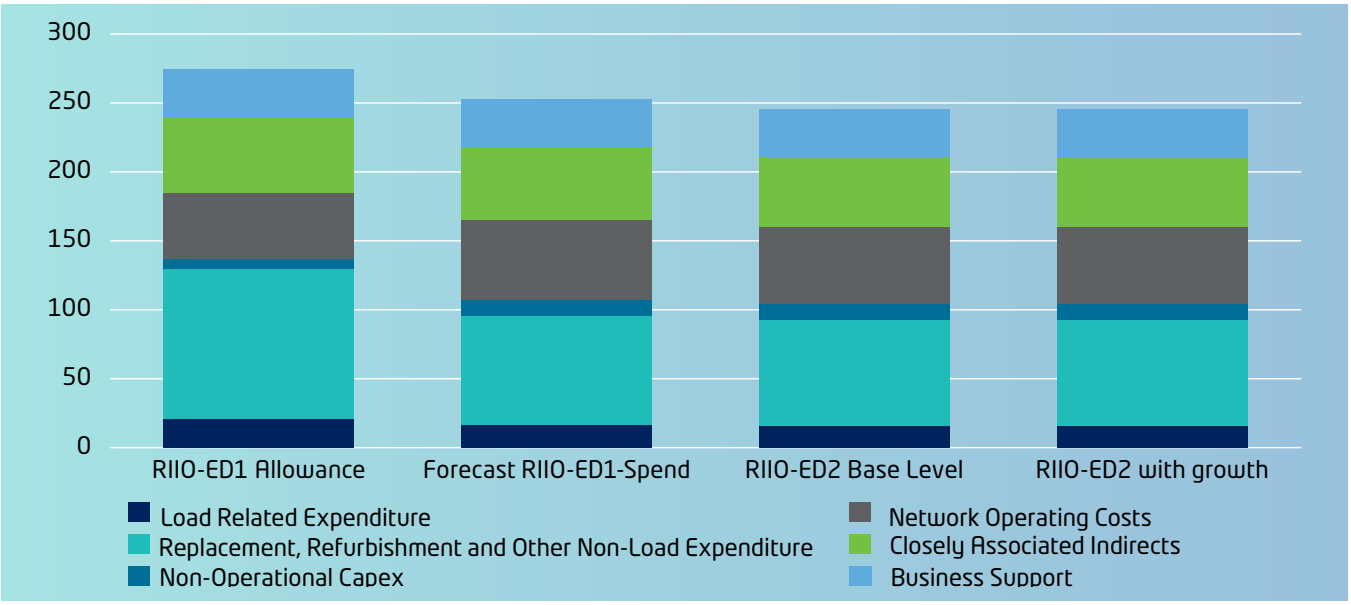
There are a number of different ways of assessing what this factor should be and we have worked with NERA to assess these approaches using up-to-date data. This includes looking at what the equivalent factors have been in similar industries. Their report is included within Annex 20 and conclusion was a central view of 0.3% per annum.

However, Ofgem have undertaken analysis in other sectors that indicates greater efficiencies may be possible which have been validated by the Competition and Markets Authority. In developing our business plan for RIIO-ED1 we set ourselves a challenging target of improving by 1% per annum and, in aggregate, we have achieved greater improvements. Therefore, we have decided to maintain this high level of ambition.

Whilst we do not currently have detailed plans for how we will achieve this, we know from our experience that by continually looking for different and innovative ways of doing things and learning from best practice in other sectors, it is a realistic target.

At a total expenditure level our underlying cost base is shown in the chart below. This demonstrates the scale of the efficiency delivered for customers over the ED1 period and the ongoing efficiency proposed for ED2.

Figure 41: Ongoing efficiencies



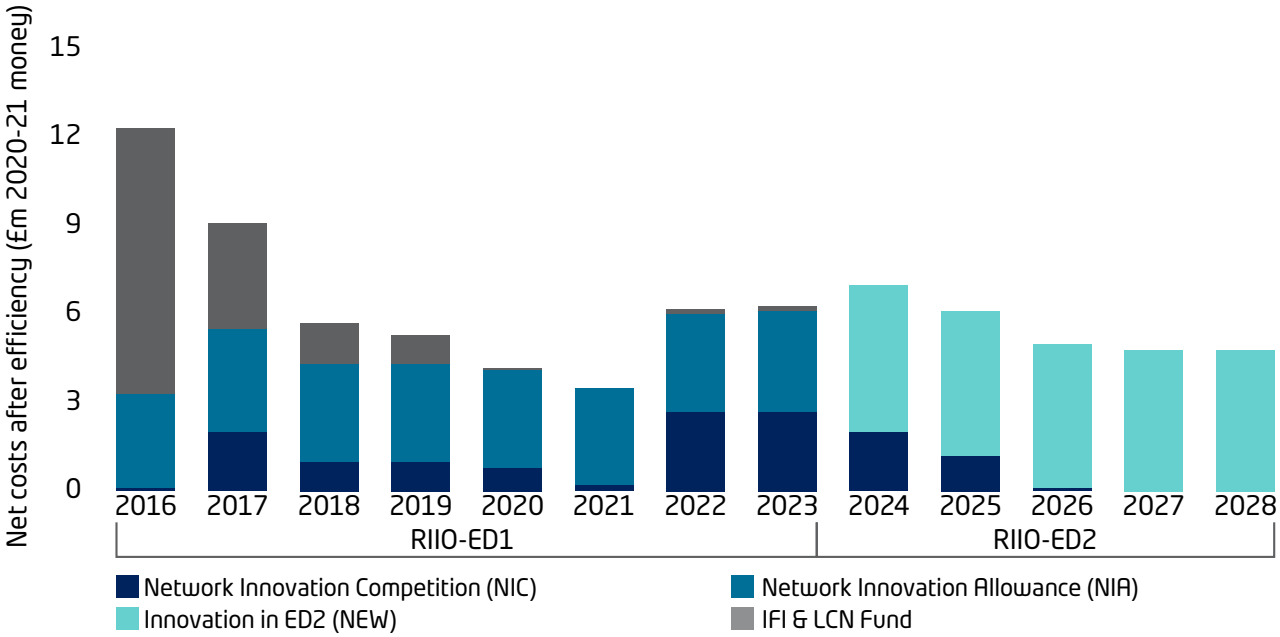
6.2.3 Real Price Effects (RPEs)

Historically, overall inflation indices such as the Retail Price Index (RPI) or the Consumer Price Index (CPI) do not necessarily accurately represent the inflationary cost pressures that we are subject to as a network operator. Inflation that we experience above that which would be captured in a general index such as RPI or CPI is termed Real Price Effects (RPEs). In past price controls, this has been treated as an additional cost forecast, to be added onto the baseline. For ED2, we are supportive of Ofgem's approach to index RPEs and we will continue to collaborate with the Ofgem and other DNOs to identify an appropriate form of indexation that can operate through the ED2 period, such that customers only pay for the actual RPEs that we experience. This removes the risk that either customers will pay for inflation that doesn't happen, or that our costs are above those that are allowed due to factors outside of our control.

6.2.4 Benefits of innovation

Innovation is at the heart of our business and we continue to invest heavily in both specific innovation programmes (primarily addressing future challenges) and undertaking 'business-as-usual' innovation activities (mainly looking at current activities). Our ED2 plan includes both the rollout of programmes trialled under our innovation programme (e.g. Smart Street and LineSIGHT), as well as including the benefits of previous innovation in terms of providing new, more effective solutions to network issues. As set out in Annex 24, our Innovation Delivery Plan provides further details of our proposals for ED2, and also the benefits of individual previous innovation projects included within our ED2 plan. The graph below shows how the proposed innovation budget in ED2 is a reduction on the total innovation expenditure deployed in ED1 from allowances and competitively secured funding from the LCNF and NIC schemes.

Figure 42: Innovation – research and development



6.2.5 Enabling competition

One of the ways we ensure efficient current and future costs is through enabling market competition for goods and services. Ofgem identifies three types of competition: native competition, early competition and late competition. Native competition refers to how network companies can minimise costs through competitive processes and procurement. Early competition refers to tenders run during the early stages of a project's lifestyle, typically as part of the needs identification, development of idea or early design states. Late competition occurs further on in the process, as part of the detailed design, build, or operation stages of the project.

We support competition, innovation and enabling new forms of service provision by new parties. This is evidenced by the fact that we were assessed as

having enabled the most competition in connections of any DNO at the start of RIIO-ED1. We are always willing to encourage the use of alternative providers where this is the most efficient way of delivering a service.

Ensuring we maintain the most competitive market for new connections is discussed in Annex 16. This section sets out how we use competition more generally to ensure the lowest prices to customers.

We already utilise native, early and late competition type models where currently appropriate, for example:

- All our load-related proposals seek flexibility alternatives adopting the flexibility best practice established by the Energy Networks Association (ENA) (early competition).
- We tender all our framework contracts, and comply with OJEU rules (native competition).
- Certain construction projects are also competitively tendered to ensure best value (native competition).
- To ensure best value for consumers, we seek competitive offerings for almost all the services and products we purchase (native competition).

The status quo model for competition is native competition. We employ this approach and apply it to all our supply chain. Further, we utilise tendering and competition testing extensively on our procured expenditure with ~80% covered by competitively secured framework agreements and more on top of this tested separately through one-off competitive processes. We understand that every pound we spend is funded by customers and as such we are targeting to increase the percentage we test in RIIO-ED2 from our already strong current position in RIIO-ED1.

Our overriding principles for procurement are to:

- ensure compliance with the relevant procurement legislation;
- deliver best value for money;
- put controls in place to prevent potential fraudulent activities; and
- contract with, and only use, reputable suppliers and organisations.

All colleagues have a duty to report any potential conflicts of interest with regards to procurement or purchasing activity at the earliest opportunity. All contracts valued at over £25,000 require two written quotations, with contracts valued at over £50,000 requiring at least three. All contracts in excess of £100,000 must be procured via a formal tender process.

Early competition can provide benefits for consumers by identifying new or innovative solutions to network problems thus ensuring the most cost beneficial efficient solutions are taken forward. We already run tenders for alternative services to traditional network build solutions, for example distributed energy resource (continuous or on demand).

Ofgem is awaiting publication of the Electricity System Operator's (ESO's) early competition plan before making any decision on early competition in electricity distribution. Notwithstanding this it has asked us to highlight any projects over £50m that may be suitable for early competition. Most of our investment programme comprises a large number of relatively small projects given the nature of our network, and no one project that we are proposing in ED2 is greater than £25m in value. Section 4.9 lists our large projects over £2m.

The criteria for identifying projects as suitable for late competition, as set out in Ofgem's Sector Specific Methodology Decision (SSMD), are projects that are:

- new – involving a completely new asset or replacement of an existing one;
- separable – the boundaries of ownership between new and existing assets are clearly identifiable; and
- high value (in excess of £100m expected capital value).

We do not have any projects during RIIO-ED2 that will exceed the £100m threshold. Ofgem highlights and asks us to consider if projects can be packaged into suitable work to be subject to either late or early competition. The nature of the work we do is that distribution assets are generally relatively small in value and our interventions are widely distributed across our region. As a consequence, no packaging opportunities have been identified.

6.3 Flexibility and load-related expenditure forecasting

As we move towards Net Zero, the electrification of more transport, heating and industry will dramatically increase the loading on electrical distribution networks. To respond we must:

- make sure that network will not be a barrier to the transition to Net Zero;
- implement economic and efficient network development; and,
- manage uncertainties in a transparent manner.

Our DSO action plan is designed to:

- better understand our network by expanding monitoring;
- establish network capacity needs whilst ensuring we don't prevent credible alternative pathways;
- promote flexible and innovative solutions with a 'flexibility first' approach; and
- develop our network in the 'right place at the right time' to deliver reliable and cost efficient capacity.

As a result, customers will be able to connect their low carbon devices simply, they will not pay for excessive network development and everyone will be empowered to deliver flexibility services. At the same time with our action plan we will continue to lead the North West to Net Zero.

To better understand our network and the new customer behaviours, we will deliver greater visibility by expanding network monitoring to lower voltages, including neutral currents and power quality that are key factors in the connection of low carbon technologies. We will also integrate smart meter data and other third-party data sources. This will allow us to enhance our forecasts, make them more representative of local customer behaviour, increase their granularity and expand them to lower voltages. Through extensive monitoring we will also optimise our network planning and facilitate flexible services at lower voltages. This will help us both in reducing the risks of capacity shortfalls and reducing costs in load-related investment.

Figure 43: Forecasting scenarios

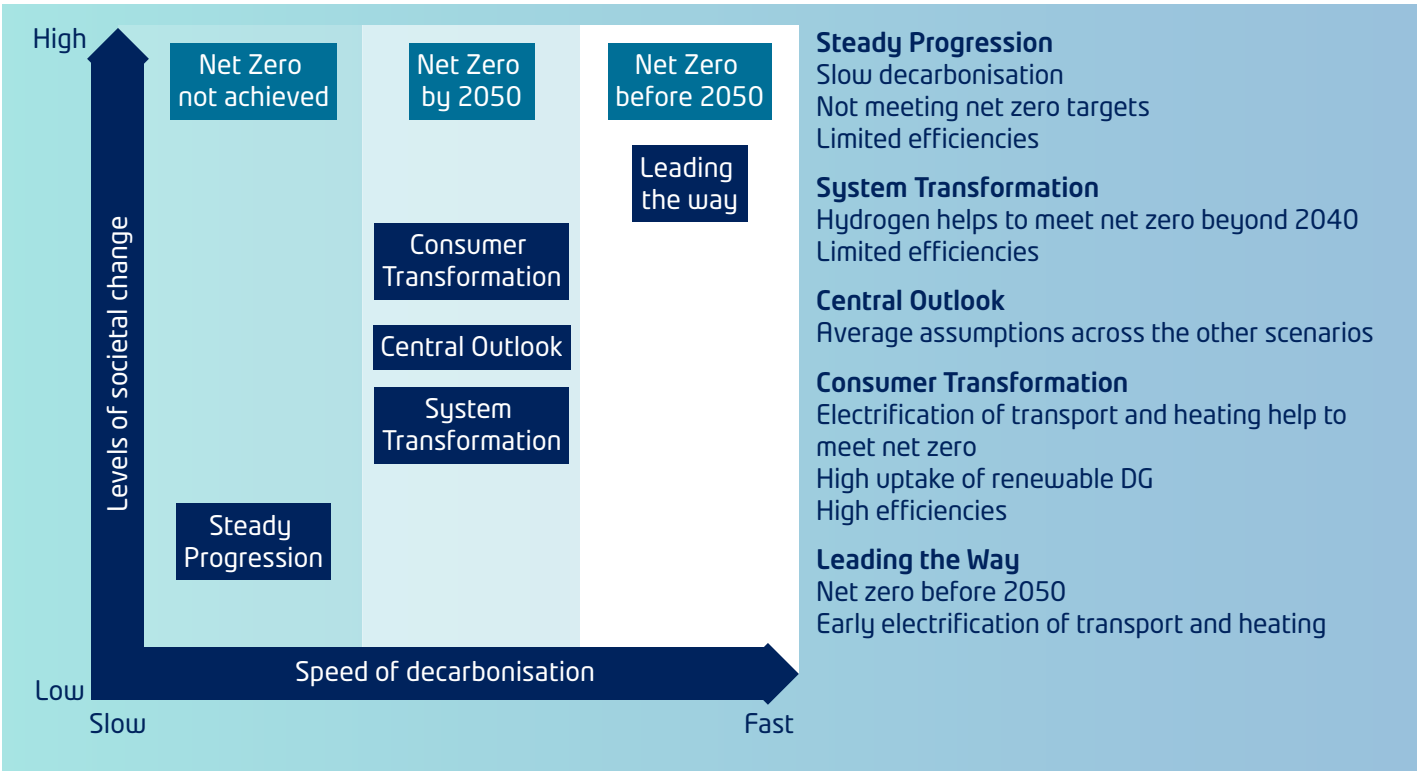
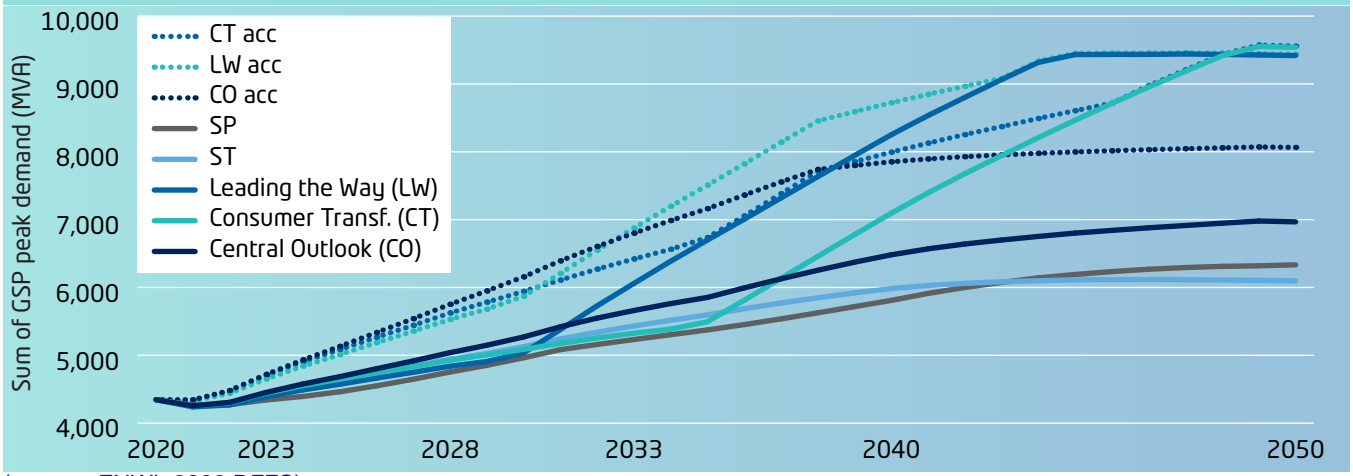


Figure 44: Peak demand forecasts for all scenarios informing our ED2 load-related investment programme



(source: ENWL 2020 DFES)

Our load-related expenditure plan is informed by our 2020 Distribution Future Electricity Scenarios (DFES). Aligned with our distribution system operation (DSO) strategy and our data strategy, our DFES 2020 is the third annual publication where we have continued the engagement with regional stakeholders to understand their plans, future needs and requirements.

To aid the development of local plans our DFES shares knowledge, experience and data for the benefit of our local communities, to ensure there is a coordinated whole system approach embedded into the Local Area Energy Plans (LAEPs) across our region. We are planning to enhance support in ED2, integrating energy efficiency approaches for mutual benefit.

Our DFES 2020 consists of four scenarios that are aligned with the Future Energy Scenarios and a fifth Central Outlook scenario, all of which are created using our ATLAS forecasting methodology. Our expenditure forecasts are also informed by accelerated decarbonisation versions of the DFES scenarios which consider the ambition of local authorities in our region to meet Net Zero before 2040.

Our Central Outlook scenario has been identified as the highest certainty/'best view' scenario that does not foreclose post-RIIO-ED2 network futureproofing to the Net Zero transition. Central Outlook is compliant with Ofgem's RIIO-ED2 guidance and as our 'best view' is the optimal network investment plan to quantify our RIIO-ED2 baseline allowance.

The other DFES scenarios and their accelerated decarbonisation versions have been used to define investment ranges that could be funded by uncertainty mechanisms and confirm that the Central Outlook scenario is at similar investment levels with the 2050 Net Zero scenarios.

We have assessed all future network impacts including thermal, voltage, fault level and harmonic distortion issues. Different approaches have been used to identify EHV (primary) and the HV and LV (secondary) network investment requirements because of the difference in volumes and costs of interventions required at different voltage levels, as well as the differences in the availability of monitoring data.

We have undertaken a comprehensive optioneering exercise based on the identified network issues associated with forecast levels of demand and generation. Following our DSO strategy that aims to increase savings from our load-related expenditure, alternative approaches are thoroughly assessed to ensure that the optimal development ('best view') plan is identified, considering the timing of interventions and not foreclosing future pathways.

This is supported by use of rigorous cost benefit analysis (CBA) which ensures that flexible solutions come first. Using flexibility services to postpone conventional reinforcement beyond the RIIO-ED2 period has been factored into our planning and will deliver load-related investment savings.

Engineering Justification Papers (EJPs) have been prepared for every EHV network reinforcement scheme exceeding £2m with associated CBAs to justify our proposed interventions. Considering wider area load growth and planned developments, strategic EHV network interventions have been proposed to increase long-term cost efficiencies and prevent piecemeal network expansion.

For the HV and LV network, a network optimisation approach has been followed to mitigate all risks from identified issues at minimum cost. The use of permanent LV monitoring is an important first step in the optimisation process, as it allows us to target interventions only when, where and at the proper size needed to avoid stranded and overloaded assets. Our LV monitoring programme overcomes the limitations

of smart meter data to take into account unbalances and neutral conductor loading. The use of LV measurements from our proposed LV monitoring programme and smart meters will also allow us to procure larger levels of flexibility services in HV and LV networks and increase savings.

EJPs have been also prepared for our LV monitoring and service unlooping programmes (see benefit 30) with associated CBAs to justify our proposed interventions.

The total cost of our 'best view' plan for load-related expenditure is £162m, with £53.9m and £108.2m spend required for primary and secondary networks respectively. This value includes the proposed service unlooping programme that has a baseline ex-ante allowance cost of £20.1m and LV monitoring at a cost of £20.6m.

Figure 45: Our best view plan for load-related expenditure

Load-related investment area	Baseline (ex-ante) value £m
Primary (132kV and 33kV)	28.0
Secondary(11kV, 6.6 kV and LV)	61.1
Fault level reinforcement	32.2
NTCC	0
Unlooping	20.1
LV monitoring	20.6
Total	162 **141.4 excluding LV monitoring**

Source: Derived from data in tables C2, CV1, CV2, CV3, CV4 and CV11 in the Business Plan Data Template submitted to Ofgem (as explained in Annex 3 – ED2 load related investment programme).

6.4 Network Asset Risk Metrics (NARMs)

Managing the underlying risk of our network is a key pillar of our overall reliability strategy. A reliable network forms the basis for satisfying customers' current and future demands for electricity and expectations on its availability.

When considering the work we need to undertake on our asset base during a price control period to manage this underlying risk, we need to consider not only the physical condition of the asset and the consequence of what would be the outcome for customers should it fail, but also customers' attitude to and appetite for risk. This is not always straightforward as managing underlying risk is less obviously customer-facing than many of our other outputs and services, however we have used different ways of exploring customer attitudes to risk as outlined in our main narrative and Annex 1.

In this we have heard very strongly that customers want us to maintain if not improve the current risk levels of the network as they see base reliability as a fundamental requirement which will only increase with the Net Zero transition. We have sought to satisfy this through a well-judged, balanced portfolio of investment which will ensure this, both in aggregate terms and when considering each of our major equipment types.

To achieve our network risk targets, we gather information relating to both the health and criticality of all our inspectable assets. This information is known as the Network Asset Indices, and these provide an indication of the risk of condition-based failure of network assets.

For most of our asset types or classes, which includes our ground-mounted transformers and switchgear, together with wooden poles, steel towers and our oil- and gas-filled cables, the approach to undertaking this forecast of probability and consequence of failure is specified in the Common Network Asset Indices Methodology (CNAIM).

This is a common and systematised approach to assessing asset risk that was established in the early part of RIIO-ED1 and approved by Ofgem. Fundamentally, it uses condition and other data to identify a Probability of Failure (PoF) for an individual asset, which can be combined with an assessment of Consequences of Failure (CoF) to create a total risk score. This score can then be projected through time using common deterioration assumptions within the methodology.

For ED2, this approach has been further developed in the CNAIM2 methodology such that the difference in lifetime risk resulting from an intervention such as replacement of equipment can be measured and compared to the cost of making the intervention to check that the overall benefits outweigh the costs. As part of this approach, we measure the impact of interventions using the metric of risk points, identifying the difference between the pre- and post-intervention risk.

In ED2, this approach to measuring asset risk is used in the Network Asset Risk Metrics (NARMs) framework where we identify:

1. our forecast risk start position in 2023,
2. what would happen to this risk level by 2028 if we did nothing, and
3. what our proposed 2028 outcome would be, and what volumes of work we are proposing to achieve this.

As noted in our Draft Business Plan, submitted in July 2021, we have discussed our approach in this area with customers and stakeholders and explored their attitude to underlying network health and risk more generally. The strong feedback that we received was that we should at least look to maintain network risk at its current levels, given the increasing importance of electricity in the future with the Net Zero transition.

Our plan looks to achieve just that, through a balanced portfolio of investment in our different asset types. The cost of this plan is also reduced through our use of techniques such as refurbishment, a number of which are the direct result of previous innovation programmes. Our Innovation Delivery Plan (Annex 24) includes further details of proven innovation that we are deploying in ED2, e.g. oil regeneration of transformers.

In order to identify the appropriate mix of work, we have used our internal modelling tools supported by Cost Benefit Analysis (CBAs) of the different options by individual asset type. More details of this process are set out in our NARMs Annex 17. Our overall NARMs proposal for RIIO-ED2 is summarised in the table below. This shows our NARMs target of £416.6m which, when combined with the assumed incidental risk benefits of other planned investment programmes enables us to maintain the overall network risk position across the RIIO-ED2 period. The total cost of delivery is £195.4m, equating to a rate of 47p per £ of lifetime risk benefit achieved, or a benefits ratio of 2.13.

Figure 46: Summary of Asset Risk Movements for ED2

£m lifetime risk points	ED2 opening position	ED2 close position without investment	ED2 close position with investment	NARMs risk points	Closing risk position vs opening
Overhead lines	582.3	786.9	665.9	-121.0	114%
Switchgear	541.9	661.9	541.5	-120.4	100%
Transformers	392.0	476.2	379.0	-97.2	97%
Cables	301.6	363.8	285.7	-78.0	95%
Total	**1,817.8**	**2,288.7**	**1,872.1**	**-416.6**	**103%**
Incidental benefits			-54.3		11.5%
Total risk reduction			-471.0		
Closing risk			**1,817.8**		**100%**

Source: Table NARM4 – ED2 NARM risk movements in the Business Plan Data Template submitted to Ofgem

6.5 Data and digitalisation

Technology and information are vital to almost every business, enabling everything including improved customer service, increased job satisfaction and rapid innovation. Within the electricity industry, it will take on an even greater significance as we transition to Net Zero.

Our digital strategy 2021 is aligned to the Business Plan Vision, the three defining themes and will contribute to the delivery of the 10 business plan primary benefits. It sets out what we will invest in across 14 investment proposals:

Figure 47: Our data and digitalisation strategy

Non-OPIT		Real Time Systems	
Work and Asset Management	**Customer and Market Operation**	**Operational IT and Telecoms**	**Smart Meters**
• Enterprise Resource Planning • Geographical Information Systems • Work and Asset Management • Complementary and Specialised	• Customer • Market Operations	• Operational Telecommunications • Smart Grid Systems • SubStation Monitoring and Control	• Smart Meters
Digital Workplace (Field and Office)			
Data Analytics and Integration Platform			
Cloud and Infrastructure (including corporate network and telephony)			
Cyber – IT and OPIT			

Additionally, it addresses external influences such as Data Best Practice (DBP) and Digitalisation Strategy and Action Plan (DSAP) guidance, the Energy Data Task Force (EDTF), the Open Network Project and the Department for Business, Energy and Industrial Strategy (BEIS) – energy strategy and policies.

We plan to continue to deliver network reliability and security, excellent service and efficient operations by building on our core services and exploiting new and maturing digital technologies that are changing the way companies interact and work with their customers and stakeholders while recognising that some customer segments have digital accessibility challenges.

For our customers and stakeholders, this will mean increased availability of data and transparency through improved digital services informed by enhanced engagement, which in turn will support market innovation, energy supply chain efficiency and economic growth.

Our customers have a large part to play in shaping and delivering our digital strategy. We aim to work together to provide improved digital services, taking particular care to avoid not excluding customers without digital accessibility or with other particular needs, and open access to network and market information.

6.6 Innovation

We have developed a continuous improvement process that will refine and confirm our digitalisation journey. Through the work being undertaken, internally and with stakeholders, to prepare our RIIO-ED2 submission we have focused on the opportunities and projects that provide the best stakeholder outcomes. We are in a process of exploration and consideration not least as the technology evolves. We are asking ourselves questions as to how best to address the challenges being posed. We aim to be open and transparent in this process and want and need stakeholders to help us decide what we do recognising that we need to remain agile in this fast-changing dynamic digital world.

For more detail on our Digitalisation Strategy (see Annex 23) which provides:

- More details about the investment we are making in technology to deliver the plan
- Alignment to this Business Plan Vision and mapping to the Benefits

Since 2010, we have invested over £80m in research, exploring and trialling new technologies and commercial models with our stakeholders and academic partners. We have invested a further £50m in operational technologies to make our network smarter.

These investments have driven a whole host of improvements for customers, halving the number and duration of supply interruptions and delivering reductions in bills. Continued investment in research and engagement has given us insights into what is needed to adapt our business in future. Customers will soon see new choices in how they interact with us and how they connect to, and use, our network.

Innovation is key to our success. We seek to innovate every day across all our business activities to ensure that we can respond to the evolving needs and expectations of our customers in an increasingly uncertain energy future. All of our innovation projects are aligned with our innovation strategy – to address the challenges of energy system transition, while maintaining a safe and reliable network and ensuring that the most vulnerable in our communities can benefit from changes we make elsewhere in the energy industry. Our size, as a single-licensee DNO also allows us to take a more focused approach to innovation, adopting a 'flatter' structure, phased approach and drive for efficient delivery, we maximise the value of innovation funding to deliver benefits to our customers. Our benefits as a single licensee are detailed in Annex 26.

In ED2 we plan to invest even further in innovation, drawing funding from our own expenditure and increasing our compulsory contribution from 10% to 15%. We are also proposing to invest £25m on Network Innovation Allowance (NIA) projects in RIIO-ED2, which together with a £21.5m investment across Network Innovation Competition (NIC) and Strategic Innovation Fund (SIF), will contribute towards £170m benefits in RIIO-ED1 and a further £200m in RIIO-ED3.

To ensure we target our innovation resources appropriately across the full range of current and future challenges, and our stakeholders have visibility of the areas on which we are focused, we have forged our innovation strategy and associated ED2 Innovation Delivery Plan around three core challenges facing distribution network operators:

1. The energy system transition (the change in energy use required to facilitate the Net Zero carbon targets).
2. Asset management (further optimising our use of existing assets).
3. Vulnerability (ensuring everyone benefits from our innovation and that no one is left behind).

To ensure we have a balanced portfolio of projects and achieve the best overall outcomes for our customers, we have identified five key innovation themes which relate to the challenges of the low carbon future and to our business plan. Each of our projects is designed to support one or more of these themes:

- **Consumer vulnerability:** We will support the needs of consumers in vulnerable circumstances today and in the future, and ensure that everyone can experience the benefits of the energy transition and any adverse effect of change is minimised.
- **Net Zero and the energy system transition:** To facilitate and accelerate the UK's transition to Net Zero greenhouse gas emissions before 2050.
- **Optimised assets and practices:** To develop and implement industry-leading techniques for optimising assets and practices for energy networks.
- **Flexibility and commercial evolution:** To develop and test innovative solutions to increase the flexibility, transparency and efficiency of the energy system, enabling information to be more open and networks to be more responsive to change.
- **Whole energy system:** To enable joined up and efficient approaches across multiple aspects of the energy system around planning, forecasting, design, construction, operation, maintenance and data.

Our ED2 Innovation Delivery Plan describes how we plan to deliver our innovation activities, including establishing our brand-new Innovation Oversight Panel, Collaborative Incentive Scheme and the new Collaboration Portal on our website. We describe how we will manage project delivery and reporting, and confirm our framework for rollout of proven innovation into business as usual.

Our innovations have helped to keep bills low while responding to the challenges of a Net Zero future.

Further details of our Innovation Delivery Plan for RIIO-ED2 in line with our innovation strategy can be found at Annex 24.

6.7 Delivery strategy

Our ED2 final business plan represents a significant increase in activity as we step up to the challenges of Net Zero, deliver a range of outcomes prioritised by customers and also comply with a range of new legal and other external requirements.

Our delivery strategy (see Annex 22 for further details) focuses on ensuring that we have the right skilled and trained resources, equipped with the right technology and supplied with timely and quality materials to do the job.

The challenge will be spread across our supply chains and will be met through the development and expansion of our own labour force, new contracting arrangements with existing and new suppliers and the building of strategic partnerships with technology suppliers.

Our primary strategy in respect of resourcing is to upskill our internal workforce, ensuring security, productivity and flexibility and in line with our workforce resilience strategy (see Annex 27), we will continue to insource those activities defined as core competencies unless it is a service that is widely available in the market place (e.g. excavation and backfill for underground cable work), providing a more efficient cost option.

Where our business plan contains a significant increase in a specific type of work, in areas such as network automation and telemetry, we will engage with suitable third parties through competitive tendering processes to enable peak workload management and for those areas where the market can offer a more efficient cost than internal resource.

Volumes of work are likely to be such that framework contractors are retained on multi-year contracts to deliver particular activities (eg overhead line work), predominantly on the lower voltage networks. These may be region-wide or retained on a sub-regional basis.

One-off contracts may also be used to deliver specific, time-bound programmes of work (eg the PCB transformer replacement programme), or where particular specialist skills are required due to the technology involved.

For higher voltages, the current contracting arrangements are likely to be retained, however the volume of these contracts is likely to increase and will require additional resource to enable their timely procurement.

6.8 Procurement

The way we procure services and materials plays a key role in supporting the delivery of the ED2 business plan and we put customers, value and corporate responsibility at the heart of all our procurement activity. We use the power of competition to secure the best value for our customers.

Our primary strategy in respect of resourcing is to upskill our internal workforce as outlined in section 6.9, ensuring security, productivity and flexibility.

During ED1 we put in place new competitive frameworks agreements for underground cable laying. The agreements will take us deep into ED2 by utilising an extension to 2028. This has provided the pricing and resource structure which allow us to continue developing visibility of upcoming work for our contractors to ensure a suitable overall resource level and price stability.

6.8.1 Our approach

Our approach is category-focused, allowing our teams to specialise in particular areas to develop expertise and relationships with the market, helping deliver excellent results. We set high standards for our suppliers, particularly concerning compliance around health and safety, quality, environmental capabilities and corporate social responsibility. We also expect our suppliers to adhere to our publicly-available 'Supply Chain Charter'. This Charter covers: ethical standards; health and safety; performance and reporting; real living wage; modern slavery; environment; and our purpose and principles.

We recognise our role as a public service utility and want to use our position to help raise awareness amongst our suppliers and other stakeholders of key environmental and corporate and social responsibility issues and how they might be addressed. We will continue to follow 'The Utilities Contracts Regulations 2016 (UCR)' for all procurement activity above the applicable thresholds.

The principles we follow are:

- equal treatment;
- proportionality;
- transparency; and
- non-discrimination.

To further increase our performance both commercially and operationally, we are transitioning to a more dynamic and value-focused procurement process for ED2, while retaining the fundamentals of the regulated approach.

We aim to develop a strategic planning phase at the start of every procurement exercise which establishes the most appropriate approach to take. By understanding through collaboration with incumbent and potential suppliers, we will develop detailed scopes clearly outlining our requirements both from a technical and value perspective.

All procurement activity is developed in partnership with our internal stakeholders to create scopes of work that are written in an unbiased way, ensuring we do not specify any brands or outputs that would restrict competition. Our specifications ensure compliance with our procurement policy whilst supporting innovative solutions to meet our requirements.

We aim to improve our delivery of fit-for-purpose suppliers who have been selected for their key attributes and capability to work collaboratively. Given the huge changes in how we use IT and data including, but not limited to, our increasing work on distribution system operation, we are focusing on our approach in the IT sector with suppliers whose scale of business facilitates dynamic and tailored solutions to support our objectives to optimise our hardware and software solutions.

During ED1 we have improved our strategic planning and collaboration with our supply chain by developing our requirements throughout the lifecycle of agreements aligning them to the changes in our environment and service requirements. By taking this approach we will maintain and improve our capacity to keep up with developments in technology and advancements in asset and resource optimisation throughout ED2.

We frequently review our use of competition and contracting strategies, and continue to develop different routes to market. We have summarised these strategies and their benefits in Figure 48 below:

Figure 48: Approach to procurement

Strategy	Benefit
Strategic relationship	Collaboration with our supply chain partners aids our capability to be front and centre in the pursuit of increased network reliability.
Framework Agreements (FAs)	By engaging with key suppliers in agreements over several years, we reduce the overall time spent on supplier selection, so we can focus more time on matching suppliers to solutions.
Mini-tenders	By the selection of suppliers who operate within our locality, we take advantage of supply and demand whilst fostering competition in each award. This works particularly well with small projects and suppliers who have less than 30 employees. We aim to support and develop these suppliers under contract periods longer than two years.
Spot-buys	With improvements in our forecasting capability, we have taken advantage of commodity fluctuations and we will continue to monitor areas of opportunity to increase the benefit we can extract from this approach and ultimately deliver value to our customers.
Dynamic Purchasing Systems (DPS)	In ED2, we aim to take advantage of the flexibility provided through the use of DPS which creates healthy competition between pre-approved suppliers. The capability to add suppliers throughout the term of the agreement will improve our options for supplier selection and reduce the sourcing time, thereby freeing-up resources to focus on optimising the supply chain.

We have developed category plans detailing our strategy in the following areas: IT; support services; plant and materials (including innovation); and construction. Each category develops the procurement strategy and process and breaks it down into tiers of supplier spend and impact on the business. Key tender activity is planned out to focus resources on the high impact and risk services and materials.

We remain flexible in our approach to benefit from working with suppliers on creative solutions to our ever-changing market. At all times we maintain our focus on our key stakeholders from across our business and ensure we consider:

- the interests of current and future customers;
- the environment;
- health and safety;
- data protection; and
- cyber security.

We use targeted key performance indicators throughout the tender process and awarded contracts to gauge the health of our suppliers, maintain performance standards and provide evidence for future supplier selection.

6.8.2 Corporate social responsibility in procurement

As we work with our local communities to transition to a low carbon business model, it is vital that we behave responsibly, acknowledging the impact and the transformative role that we and our suppliers have in our local communities. This is articulated in our approach to CSR through our 'transforming our communities' purpose-led responsibility framework (section 1). This incorporates our approach to working with our suppliers.

We are an accredited Real Living Wage employer and we encourage all our suppliers to attain this standard. All our tenders request this commitment and it makes up part of our supplier selection criteria. Mapping our supply chain provides a clear insight to the makeup of our suppliers across the UK, Europe and other continents.

Understanding the conditions people are employed in when manufacturing our materials is key to ensuring that we adhere to the commitments we make to our customers in our Environmental Action Plan (see Annex 13).

Our impact on the environment is a key focus area and single use plastics are predominantly part of our supply chain in the form of primary and secondary packaging. We are working with our suppliers to highlight areas that can be focused on for removal to alternative packaging or changes in storage and distribution processes. In ED2 we will be working with other utilities to pool our demand to drive the agenda with common suppliers. As an example of simple innovation being deployed to remove packaging, we are working with suppliers using tubs to act as storage and transportation products.

As part of our tender process we also work with suppliers to reduce the delivery miles to Electricity North West depots for finished goods and services. Our logistics requirements in the reduction of CO_2 will continue to be supported by our logistics provider. This approach requires detailed forecasting of demand and we will be implementing a new planning system to make this easier to manage (see 'Key agreements' below).

Their unique business model for resource has helped us work closely with members of our community who require support to move them into full-time employment. Throughout ED2 we aim to work with organisations such as Recycling Lives strategically and look at other opportunities where we can work together to improve our waste management and our communities.

Living Wage Foundation: We are an accredited Living Wage employer and we have built into our supplier selection process the expectation to pay the real Living Wage. During ED2 we will widen this to our secondary suppliers as well as our contracted suppliers. We will continue to promote the importance of paying the real Living Wage throughout ED2.

Anthesis (develop our approach to capturing Scope 3 emissions): We are currently working with Anthesis to develop science-based targets via the Science-Based Targets Initiative. Adoption of a suitable approach will provide insight into the Scope 3 value chain emissions beyond those currently calculated. Scope 3 emissions are indirect greenhouse gas emissions resulting from an organisation's operations. They also can be described in value chain terms as upstream (purchasing) and downstream (customer) activities.

Achilles: We work with Achilles who administer our selection database and primary supplier pre-qualification. As part of the service they also run a utility group to develop their system against the needs of this community. It is important for us to create a complete picture of our supply chain not just in terms of performance, but also in relation to ethical and environmental standards. For the start of ED2, the group will be creating a new template for the audit service provided which we use to assist our pre-qualification of suppliers during tender but also to build up our understanding of our end-to-end supply chain. Over 80% of our supplier base is registered on Achilles which provides us with an excellent, up-to-date data source.

6.8.3 Key agreements

In addition to the framework agreements for underground cable laying previously referred to, which have the potential to run until 2028, we will award our new logistics agreement in April 2022 and it will potentially run for eight years covering all ED2 requirements. This avoids any impact from mobilising the new contract and associated potential material supply interruptions.

As part of our efforts to improve efficiency in logistics, we are also launching a new system to allow our teams out on site to access their material and equipment provisions via their mobile devices. This will save time and reduce mileage between site and depot stores by locating parts remotely and arranging delivery without the need to return to the stores.

Our generator framework agreement, which will run deep into ED2, was awarded to a new supplier in April 2021 deploying new equipment which is more efficient than previous models. The communication between our teams ordering the service and the generator provider has also been improved to take advantage of an app-based ordering capability. The added benefit of locating the generator provider at a site within the centre of our geographical catchment area enables delivery within three hours from order to site and this in turn will reduce the time our customers are without electricity.

6.8.4 Using data

Recent events with COVID-19 and Brexit have highlighted the need to understand at a granular level supplier capability and risks residing in the supply chain. We have developed our sourcing portal to include all our contracts and created detailed reports to support our understanding of demand/spend per agreement, expiry dates for renewal or tendering, supply chain map for locations, and adherence to our policies such as modern slavery and real living wage. The outputs facilitate greater analysis and understanding of our Procurement KPIs while making the whole process more efficient.

To support the breadth of change required for our IT procurement we have implemented a dynamic team who can provide the depth of knowledge of the suppliers and services required to match our aspirations to enhance our systems and software. We will utilise all the available sourcing strategies and processes at our disposal to create a supplier portfolio to support customers' requirements.

An example of this is with Chime our supplier for a new asset planning and resource/material planning system. The new system creates an item level forecast for planned work which will interface to our materials planning system, generating a material forecast for our suppliers.

The forecast will also be used to support our tendering activity with accurate material and resource demand.

6.9 Workforce resilience

6.9.1 The future of our workforce – our people vision

The specialist skills of our workforce are crucial to the successful delivery of our business plan benefits and outputs for ED2. We need a workforce equipped to build, operate and maintain the network now, developing with us as we transition towards our ambitious plan for Net Zero.

ED2 provides a platform to recruit specialist skills, recruiting a workforce that is representative of our communities and promoting greater diversity across the utility sector. The investment in our people throughout ED2 is what will drive our success.

The workforce resilience strategy is supported by a robust people strategy and diversity and inclusion (D&I) strategy. These combined strategic plans will support the significant cultural shift required to drive inclusivity. Our ED2 people vision is set out below:

6.9.2 People vision and workforce resilience supporting strategies

Our people vision for ED2 is key to supporting our drive for change:

To develop an inclusive culture where colleagues' expertise supports us in future proofing our network, leading the way to Net Zero and always ensuring our customers are at the heart of everything we do.

To successfully achieve Ofgem's requirements of having a diverse, motivated, well trained, productive and healthy workforce, our ED2 people vision is underpinned by three elements:

- Our existing people strategy developed in ED1 has enabled us to successfully Attract, Develop and Retain the best people, bringing together a suite of diverse people policies and processes.
- Our ED2 workforce resilience strategy details our people goals and commitments which support us in achieving the ED2 business plan.
- Our newly-launched diversity and inclusion (D&I) strategy puts diversity and inclusion at the centre of everything we do. The four pillars of this strategy are woven throughout our workforce resilience strategy to highlight key people activity which drives our business plan, positively shaping a change in how we deliver a more diverse and inclusive place to work.

Our people vision provides clarity for the workforce resilience, people and D&I strategy as we move into ED2. We are confident the combined strategic plans will drive the continuous change in culture and behaviours required to meet the demand of the changing electricity industry.

This approach will drive inclusivity, motivation, productivity and performance, key metrics for ED2. Colleagues will have opportunities for development through upskilling and multiskilling creating an environment where colleagues can thrive improving overall workforce satisfaction. These strategies will ensure we attract, develop and retain talent and continue to meet the needs of our customers.

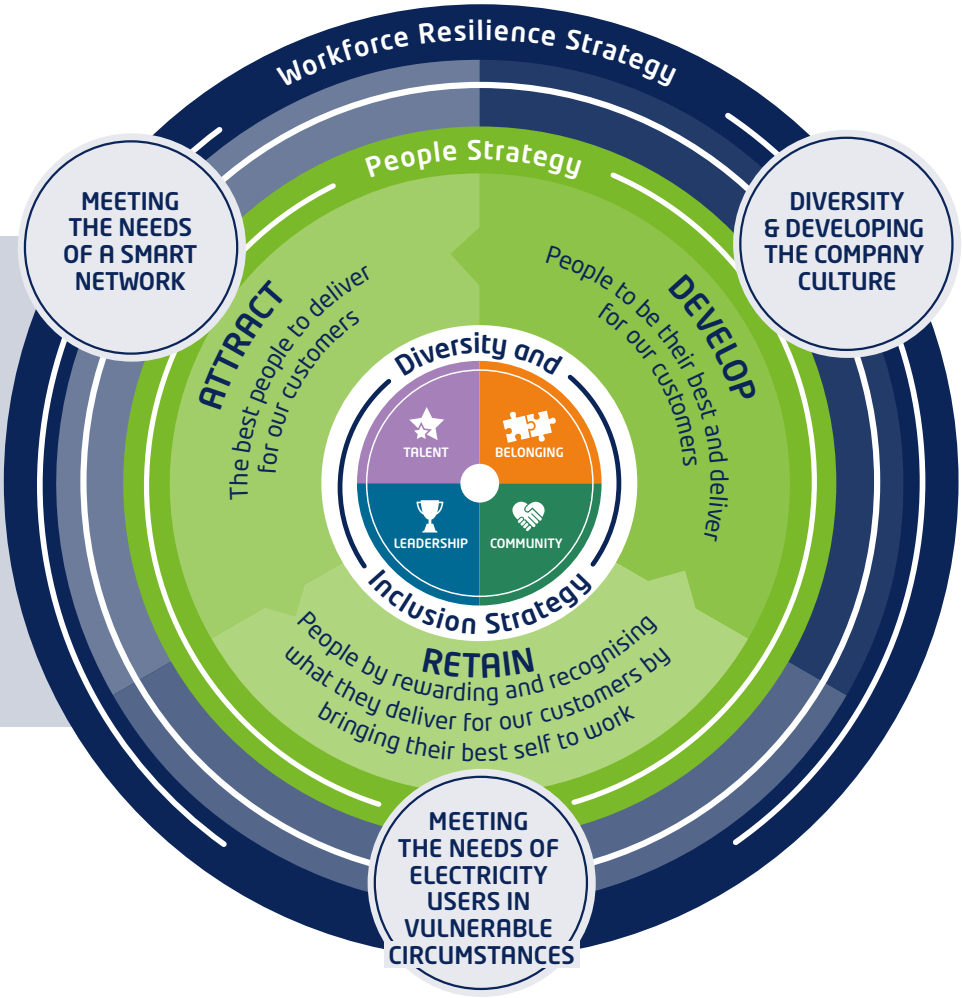
6.9.3 Workforce resilience strategy

The workforce resilience strategy has been developed with engagement from key stakeholders including our colleagues, customers, CEG, Trade Unions at a local and national level and influential industry bodies.

Our workforce resilience strategy provides focus on three identified goals which will enable us to deliver our ED2 business plan:

- **Goal 1:** Diversity and developing the company culture
- **Goal 2:** Meeting the needs of electricity users in vulnerable circumstances
- **Goal 3:** Meeting the needs of a smart network.

Figure 49: ED2 People Vision



To develop an inclusive culture, where colleagues' expertise supports us in future proofing our network, leading the way to Net Zero and always ensuring our customers are at the heart of everything we do.

Our vision

"We are committed to creating a sense of belonging for our colleagues and truly reflecting the communities we serve."

BELONGING

We will work with colleagues to create a great place to work where everyone feels they belong

TALENT

We will be innovative in attracting talent and making our career paths accessible to the diverse talent in our communities

LEADERSHIP

Our leaders will support all colleagues driving respect and fairness in everything we do

COMMUNITY

We will champion diversity and inclusion in our communities to drive positive change

Goal 1 – Diversity and developing the company culture

We will drive and embed a truly inclusive culture, where every colleague is supported and feels they belong, driving motivation, productivity and engagement.

In ED2 our focus on diversity and creating an inclusive culture will create a platform for us to further drive significant change for our people, communities and partners. Changing culture and behaviours is challenging but we are confident it is achievable. Performance throughout ED1 has been supported through positive incremental cultural change in health and safety, mental wellbeing, colleague engagement and training of all leaders on carbon literacy achieving silver accreditations which supports us in our readiness for ED2.

We are very committed to ensuring that we play our role in having a workforce that is representative of the communities we serve. We have a foundation to work on for ED2 from the work we have achieved in ED1 but recognise that this will be one of our biggest challenges to meet from a people and culture perspective. Key highlights of what we have achieved so far are listed below:

D&I achievements in ED1 include;

- Increased female leadership from 26–32% and ethnic minority colleagues from 2–4%
- Increased diversity of Apprenticeship programme by having 21% female and 26% ethnic minority and won recruitment practice of the year award at the national apprenticeship awards
- Appointed a Diversity & Inclusion Manager to drive significant change
- Adapted colleague self-declarations access to include gender including non-binary, ethnicity, sexual orientation, disability
- Achieved Disability Confident and Forces Friendly Bronze Accreditation
- Partnered with two local mosques to work with underrepresented groups in the local community
- Sponsored Manchester Pride in 2019 showing support for the LGBTQ+ community
- Conscious inclusion training attended by all operational leaders and trained 20 recruitment champions
- Incorporated multi faith rooms, breastfeeding facilities and improved accessibility at offices
- Introduced new careers portal with greater candidate accessibility, audio, visual, language translation and blind application functionality
- Trained over 4,000 school children though our Bright Sparks Programme – promoting STEM subjects

For ED2 we have fully embraced the need to set defined qualitative metrics on diversity and culture. The metrics demonstrate our commitment to positively embracing an inclusive culture and the diversity of our workforce.

Our diversity metrics are reflective of the demographics of the community we serve, whilst ambitious, we are confident that our robust diversity and inclusion strategy supported by our people strategy will ensure these metrics are achieved.

Our ambition throughout ED2 is to continue to create a great place to work, to be an employer of choice attracting great talent into the business to support our move to Net Zero, the development of new technologies and the DSO. Creating a forward thinking, cognitively diverse business will ensure we continue to lead the way on innovation in the sector.

We are confident that our plans will drive motivation, productivity and engagement which is why we will be applying for assessment for the Investors in People Silver Accreditation in 2022.

Goal 2 – Meeting the needs of electricity users in vulnerable circumstances

We will train and increase the number of dedicated customer support colleagues in ED2 to ensure that we have the right people with the right skills to meet the diverse and growing needs of these customers.

ED2 brings a new skills challenge for all our colleagues if we are to deliver our business plan commitments for customers. We need to educate our customer-facing colleagues on how to recognise the signs of vulnerability in our customers and understand what they can do to help them. We plan to invest over £1.2m to train all colleagues on customer vulnerability.

To deliver the commitments to support electricity users in vulnerable circumstances throughout ED2 and beyond, plans are in place to increase the headcount of our dedicated customer directorate over the next three years by approximately 55 with a range of contact centre and leadership roles.

Through our people, we will be able to support our commitments to the Priority Service Register strategy and to enhance our coaching and development model. We are confident that especially given the variety of career paths that we can offer for colleagues in this directorate and wider in the business, the overall competitive reward package we offer and the established relationships that we have with our agency supply chain mean that we are best placed to fulfil this recruitment need.

Goal 3 – Meeting the needs of a smart network

In ED2 we are investing to ensure that our workforce and our network partners have the right knowledge and skills to embrace the introduction and impact of new technologies so that we can deliver a future proof, resilient and reliable network and enable the North West to achieve Net Zero.

Our business plan is underpinned by the delivery of a resilient and reliable smart network. The introduction of fault location technology and the increasing connection of low carbon technologies means that we need to balance the current core skills with a strong programme of upskilling and multiskilling. This will ensure that our people can develop and deliver the changes needed for our customers and that we have a robust supply chain in place for any outsourced work aligned to our drive to be representative of our communities.

We need to make sure that we have the right number of people with the right skills to adapt to the introduction of new technologies needed to enable our customers transition to Net Zero. These technologies require a balance of existing core skills and new skills, which we will achieve through upskilling and multi skilling our current workforce plus the attraction of new talent to embrace these technological advances.

We are excited that we will need to recruit additional resource at either entry level via adult trainees or via apprenticeships to allow the development of our existing workforce. We have a strong track record of attracting apprentices, by the end of ED1 we will have recruited and developed over 140 apprentices.

We are proud to have won awards for our apprenticeship scheme including:

- Best learning and development initiative at the People in Power Awards hosted by the National Skills Academy for Power (2019)
- Recruitment Excellence Award at the National Apprentice of the Year Awards

The apprentice scheme is a great way to meet our attrition needs in ED2 and to improve diversity at our company. In 2020, 21% of successful candidates were female and 25% were from an ethnic minority background. We will continue with our apprenticeship programme and develop this further by introducing apprenticeships in areas such as IT and cyber security to meet the changing needs of the business and the industry.

Our DSO transition plan and innovation strategies detail the new skills that we will need as we lead our community to Net Zero. The Net Zero challenge provides us with a clear impetus for adaption, development and change. We welcome the challenges and opportunities that are facing the electricity industry.

The move to our role in distribution systems operation will allow us to inspire, engage and support our customers to enable them to move towards Net Zero and show them how they can benefit from flexible markets. A successful transition to DSO will be delivered by motivated and skilled colleagues from within a newly created DSO directorate and across the wider business.

We recognise that data management, governance, analytics and data sharing are key components of our DSO, grid digitalisation and digital strategies. Recruitment of new skills will be required to implement these strategies. We will focus on how we attract these new skills into our company by partnering with universities to ensure a pipeline of talent as well as working hard to be an employer of choice for experienced candidates.

We are excited by the challenges that ED2 presents. We look forward to playing a role in influencing the wider industry to embrace a more inclusive culture that allows us to attract and retain the best talent to meet the needs of an ever-evolving electricity industry.

In this section

Section 7

How we'll finance the plan

Getting the financing right is key to the successful delivery of this customer and stakeholder-backed plan. To show our commitment to delivering at lowest cost to customers, our shareholders have agreed to take no dividends for the whole of ED2. As part of our plans we're bringing bills down despite increasing investment. Using Ofgem's financing assumptions for comparability, average bills would come down by up to -£12.49.

We have set out below the issues affecting the financeability of this business plan, and, in particular, our conclusion that the plan is not currently financeable based upon the assumptions that Ofgem has asked us to use.

We note that many of the issues discussed in this section have been considered recently in the CMA appeals in respect of RIIO-GD&T2. These appeals focused largely on equity returns, but also covered debt financeability in one case. The CMA's detailed final determination was published on 1 November 2021. As we have not been a formal party to the CMA's proceedings, we had not been able to see any of the detail of the CMA's thinking, or its exposition of the views expressed by Ofgem or the other parties, before that point. The timing of the publication of the CMA's decision, and the date for submission of our final business plan, means that we have not yet had the opportunity to consider fully and reflect on the detail of the CMA's findings. We will continue to do so over the coming months and look forward to continuing to engage with Ofgem in this regard.

7.1 Overview

As such, instead of proposing a specific cost of capital figure in this business plan, we plan to work with Ofgem to further explore the financeability challenges and those adjustments to the notional company which could be used by Ofgem to update the cost of capital allowances to address this financing risk.

To this end, we have included an Alternate Cost of Capital Annex that discusses in detail the risks that we perceive with the current cost of capital allowance and the options available to Ofgem to alleviate the financeability challenges. This effectively sets out a range of measures to address financeability.

In context, our forecast average customer bill for ED2 is £77.26 per annum, representing a £12.49 decrease (13.9%) over ED1. We consider an upper range for the potential bill impact associated with addressing our financeability challenges as £7.54[2]. Consequently, even at this point in the range, our customers would still see a significant saving of £4.95 per year (5.5%) over ED1.

A key requirement of funding investment in the network is to get the balance right between current and future customer bills, notably when calibrating the financial components of the price controls.

7.2 The role of finance

Electricity Distribution Networks are long-term, asset intensive businesses. Investment in day-to-day operations, together with the capital investment to renew and replace the network infrastructure, will continue to deliver for customers and stakeholders for decades to come. It therefore makes sense to finance these investments over a long period of time, rather than ask customers to pay for it all in the year in which it is spent.

We finance these obligations with a combination of lower-cost debt finance and higher-cost equity finance. An optimum balance needs to be found between debt and equity finance. Ofgem has determined that this optimum is achieved at 60% debt and 40% equity for ED2; this optimum was determined at 65% and 35% respectively for ED1.

A key requirement of funding investment in the network is to get the balance right between current and future customer bills, notably when calibrating the financial components of the price controls. Ofgem has determined that investments made in each year of ED2 will be repaid over the following 45 years.

Given the longevity of our network assets, it also makes sense to finance this investment over long timeframes. This applies to both our debt finance and equity finance.

We have followed this approach for many years, raising our debt as efficiently as possible over a period of approximately the last 25 years. As a smaller network, independent of other licence areas, we access the UK bond market less frequently than others, as it is generally only efficient to access this long-term market with a minimum of £250m at a time (this is referred to as 'benchmark' size, below which investor appetite falls , and debt costs rise). These factors result in a debt finance profile that does not match, and is not able to be managed to match, the smooth 17-year trailing average profile on which Ofgem proposes to base the RIIO-ED2 debt allowance for all companies[3]. This 'one-size-fits-all' debt allowance results in a significant underfunding on our debt costs, leading to financeability issues for us in RIIO-ED2.

2 The two framework changes recommended would cost £2.35, with while the upper range in respect of cost of capital options (as discussed in the Alternate Cost of Capital Annex) would cost £5.19.

3 Groups which comprise multiple licensees effectively raise equity as a single risk entity and manage systems and debt structures on a consolidated basis. As such, they are able to consider the debt structure across multiple licensee areas on a portfolio basis, thereby reducing the risk of deviation from the sector average. When discussing financeability, we use the term licensee to refer to single licensees or licensee groups.

Engaging with our stakeholders on finance

We convened our deliberative Plugged In Public Panel of 40 members of the public and ran a four-hour workshop with them to educate them about financing issues and hear their views. This was the first time that we had sought to discuss financing issues with our customers.

The panel learned how networks are financed, the role of credit ratings and the impact on customers' bills. Members were able to ask further questions to help their understanding. The quality of their follow-on questions showed the good understanding that they had obtained. The session facilitated debate on three key themes:

(1) How Electricity North West's credit rating impacts them as customers.

The members indicated that overall it was very important to them that Electricity North West has a good credit rating. They saw the significant impact that it could have both on their bills and the company's ability to deliver key investments which they wished to see, such as those needed to reach environmental targets.

Members were also asked to consider what, if any, range of bill increase they would find acceptable to protect the company's credit rating. The panel was reasonably split on this question, but most of the reasoning given for members choosing a small bill increase centred around wanting to find the fair balance between ensuring the financial health of the company and charging customers a fair price.

(2) Over how long should the cost of planned network investment be spread?

Overall, members took the view that it was better to spread the costs out over shorter periods to take responsibility for investments being made today and to benefit from this being anticipated to be the more cost-effective approach. Some members wished to see this approach taken after the economy has recovered from the COVID-19 pandemic.

Members also discussed how important factors such as stable and predictable bills; minimising the risk of higher bills in the longer term; and the delivery of company outputs and the planned network investment were.

Members consistently said that these factors were all important to them, which agreed with their view that the credit rating of the company is important.

(3) Whether Electricity North West should be engaging with customers on questions such as how the company is financed.

On this subject, there was a very positive response from members. The majority voted to say they thought this was the right thing to be doing. Some members highlighted that some points discussed had been challenging due to the complexity of the issues being discussed, but overall the panel was keen to see this sort of engagement in future.

7.3 What is meant by financeability?

Financeability refers to the ability of networks to raise finance. It applies equally to debt and equity finance. Financeability is critical in ensuring that networks have enough finance available, both to cover the day-to-day needs of the business while also supporting longer term investment and growth.

Ensuring financeability protects customers and keeps bills low over the long term. Ofgem has a duty, set out in the Electricity Act 1989, to have regard to the need to secure that licence holders are able to finance their activities (the Financing Duty). Ofgem achieves this by setting fair price controls such that, provided licensees are efficient, they should be able to fund all the demands on them for investment etc. in order to meet reasonable demands for supply. From an investor standpoint, this duty is important as it balances up Ofgem's ability to impose obligations on the licensee with the requirement that Ofgem cannot disregard the need for the licensee to finance these obligations. This covenant allows networks to achieve an investment grade credit rating (with sufficient headroom to accommodate market and other pressures), while also delivering sufficient returns to debt and equity shareholders for the licensee to be able to attract new investment in the business to meet network investment needs.

Equity investors, unlike debt investors, don't have a maturity or repayment date. Equity investors tend to hold investments over the very long term. To attract new investors, potential equity investors need to have confidence that the regulator will set fair price controls over many regulatory periods, such that they can have confidence that, should they decide to invest, they will receive a fair return over the long term. The more uncertainty shareholders have in this outcome, the higher the returns will need to be to attract investment in the sector. Clearly the historic and current treatment of those already invested is a critical part of building this confidence, as is the need to ensure that all licensees in a sector have the same chance to be equally attractive to equity investment.

This investor confidence is even more critical than ever in the upcoming regulatory period(s). Whilst, from a short-term bill perspective, it would be easy for Ofgem to reduce returns, once investors lose confidence in the sector, it would be expensive and take time to regain the confidence needed to attract new investment again. Delivering Net Zero carbon requires significant investment in the UK's distribution networks. It is critical that our ability to obtain finance at this time is not hindered by setting either the debt allowance or equity returns too low. Failure to attract finance will result in our having to defer investment, in turn delaying the transition to Net Zero. Financeability therefore needs to be assessed against the downside, or harm, to customers of the failure to attract sufficient finance. Customers are keen to see us lead the way to Net Zero, so it's very important for these returns to be set at a level that is seen to facilitate this:

- 90% of stakeholders assessed the delivery of company outputs and the planned network investment as 'Very important' or 'Quite important'
- "This is what we've all been working towards…"
- "If ENWL doesn't invest appropriately it can have serious negative consequences down the line"[4]

Taken together with the decision by Ofgem in ED1 to extend the network investment payback period to 45 years, the scale of long-term debt and equity financing required by us will grow significantly, from £1.6bn (i.e. the Regulated Asset Value) at the start of ED1 to an estimated £3.0bn by the end of ED2. This scale will be mirrored by other networks in the sector, and therefore the sector will be 'accessing' the debt markets (and the UK debt market in particular) much more than it has in the past, reinforcing the need to maintain investor confidence. This extended 45-year payback means that it is sensible for companies to seek similarly long-dated investment, attracting and

4 Taken from Electricity North West's Plugged In Public Panel, Panel 8 report.

retaining debt and equity finance across multiple price controls, reducing what is referred to as refinancing risk.

Planned ED2 network additions are far in excess of the return of capital in ED2 (the 45-year period used for regulatory depreciation effectively results in the return of capital to investors over this 45 years). This net investment results in significant growth in our Regulatory Asset Value (RAV): our RAV is forecast to increase by approximately £1bn or 50% in the seven years to the end of ED2. This growth needs to be funded 40% from equity, typically, in the first instance, from the effective reinvestment of dividends.

Significantly, from the perspective of equity investors, the significant reduction in, or even curtailment of, dividend payments, needed to support this growth changes the investment proposition significantly.

Pension funds have traditionally been providers of long-term patient capital into the infrastructure sector, but they require predictable and attractive dividend yields to fund payments to pensioners.

This proposition changes further in the event that additional investment is required in ED2, for example, due to the impact of the Access SCR or a faster trajectory on decarbonisation. In these instances, additional equity will be required to deliver the required investment. We believe that this is a critical dynamic that should be taken into account, alongside the dividend issue, when calibrating the regulatory equity return.

To achieve the planned growth in investment, confidence is key: we believe this is a major factor in why Parliament gave the Financing Duty to Ofgem – it provides confidence to investors that the regulator will have proper regard to the need to be able to secure the financeability of the networks, given the obligations imposed on the licensee.

Later in this section, we propose four tests to assess financeability (see Figure 54, and section 5 of the Finance Annex 28 for the reasons on why these four tests were chosen), which are supported by a consideration of the likely funding requirements. We believe this approach to the financeability assessment considers the critical investment factors for each of debt and equity investors. Based on Ofgem's models and working assumptions, we conclude that we fail all four of these tests for the actual company model (see 7.4.4 below). This is both due to a mis-match between our actual debt costs and those assumed by Ofgem when looking at the theoretical, notional company scenario only, and furthermore due to allowed equity returns being below the levels required to be sufficiently attractive to new equity investment, in both the notional and actual companies.

Without any adjustment to Ofgem's financing working assumptions, equity is being asked to subsidise the debt under-funding position, limiting the attractiveness of the network to investors and therefore impeding our ability to raise the new finance required to support Net Zero delivery. Critically, this underfunding issue arises not just in respect of past issuances, but is at risk of occurring in respect of future issuances.

The push for ever-lower cost of capital allowances has left little or no headroom to absorb shocks or forecasting variations. Investor confidence in the sector would be severely impacted by any default or significant ratings action in a regulated infrastructure company. The resulting increase to financing rates would impact future customer bills, across all regulated sectors, by an amount which we believe would more than offset any short-term benefit to customers from bill savings resulting from lower returns in ED2.

7.4 How we assess financeability

As a business we must assess our financeability on the 'actual company' position. This reflects the 'real-world', both in terms of our actual expected performance and it is how investors will view us.

Ofgem has set out its guidance for networks to assess financeability. This requires networks to assess financeability on both the notional company basis ('Notional') and on an actual capital structure basis ('Actual') and we have included both in our assessment.

On debt, Ofgem sets the debt allowance for this notional company based on a 17-year trailing average of financing rates and then aligns this average broadly to the average cost of debt in the sector.

Whilst this approach meets the broad sector debt cost as a whole, it runs the risk of under (or over) funding some companies, particularly the smaller, less frequent issuing licensees. Any approach that could result in a number of networks being underfunded, for a price control period or, worse, for multiple price control periods, and which then gives rise to financeability issues, whilst other networks are being over-compensated (other than through over-delivery to customers), appears to us to be difficult to justify as being in the long-term interests of consumers. That some networks are being over funded for a regulatory period is also forcing some customers to pay more than they should be paying in the short term.

On equity, Ofgem's working assumptions include an allowed equity return of 4.40% for ED2. This is 25 basis points (0.25%) below the 4.65% that Ofgem determined was an appropriate equity return based on its Capital Asset Pricing Model (CAPM) evidence and cross-checks. The 25 basis points adjustment to the allowed return, termed the 'outperformance wedge', reflects Ofgem's view that networks will expect to generate this level of outperformance in ED2.

Ofgem proposed the same adjustment for the GD&T2 price control, but its inclusion was appealed to the CMA by all networks. The CMA found in favour of all appellants that the Gas and Electricity Markets Authority (GEMA) was wrong to impose the outperformance wedge.

We do not believe the outperformance wedge is justified for ED2, given the other mechanisms to set the price control. However, in line with Ofgem guidance, we have prepared our financeability assessment using an allowed equity return of 4.40% and also assumed outperformance of 0.25%

We highlight that these assumptions are economically similar to using an allowed equity return of 4.65% and therefore the removal of the outperformance wedge in itself should have minimal impact on the financeability assessment or result.

We include the results of the notional company in our business plan submission. These results are particularly relevant for assessing the equity allowance, and indicate that, the more ambitious the plan is (i.e. the more investment is required), the less adequate the equity allowance appears (and therefore the harder it is to raise equity investment).

Ultimately, we believe any assessment of financeability must focus on the actual company position, as this most closely reflects how investors and ratings agencies make their assessments. Whilst a notional company approach can work when setting allowances, it is important that the notional company used is reflective of the innate circumstances of the licensee[5]. The notional approach also needs to ensure that the risk to each licensee of performing in line with the notional company allowance is the same, regardless of the licensee group size. That the actual company results differ significantly from the single notional company is an indication that there may be significant structural adjustments that are required to the sector-average notional company to reflect the actual characteristics of the particular licensee groups.

5 As equity is raised on a licensee group basis and reflects a single risk profile, for the purposes of financeability, any reference we make to licensee in the plan refers to the licensee group.

These changes would improve our ED2 cash flows and provide some modest capacity for us to respond to a faster decarbonisation path without needing to attract as much new equity investment

7.4.1 Our assessment of financeability

We include the summary financeability analysis in this business plan and include the full detail required by Ofgem in the Ofgem Required Model Outputs Annex

Our financeability tests are set out below and consider both debt and equity investors. There is clearly no point being able to borrow debt, if we are unable to raise equity to match it.

Our business plan is built based on the requirements of our customers and the delivery of key environmental and sustainability targets. The scale of investment is significant, particularly in the light of the UK's intention to accelerate its decarbonisation agenda and if the range of outcome of the uncertainty mechanisms (see Annex 29 Uncertainty Mechanisms) is considered, it requires significant investment from both our shareholders and from debt investors to deliver it, in addition to reduced or nil dividend returns.

We have already stated that there will be an increased call on investors to fund this investment and, in step with this government's stated "levelling-up" agenda, we should not be disadvantaged by offering lower equity returns or higher credit or equity risk to potential investors, than other networks/regions.

While we have had to assume in our plan that no dividends are paid, equity investors clearly usually expect to receive a dividend stream from their investments. We note the non-payment of dividends is in conflict with the need to attract investment; the absence of such a stream will tend to push required returns higher. However, the lack of a dividend stream is reflective of the need to invest to deliver Net Zero and demonstrates our investors long-term commitment to our business and to the North West.

Based on Ofgem's working assumptions for debt allowances and equity returns, our assessment demonstrates that there are significant financeability challenges for the notional company, and, most importantly, the actual company.

We therefore conclude that the business plan is not financeable based upon Ofgem's current proposed working assumptions for the cost of capital.

We have considered whether framework changes can remedy these challenges and include two recommendations:

- Decrease regulatory capitalisation rate to 65% from 68%. This is approximately three ppt below our forecast statutory capitalisation rate; and
- Maintain notional company gearing at 65%. This keeps the proportion of equity and debt financing of the business at ED1 levels.

These changes would improve our ED2 cash flows and provide some modest capacity for us to respond to a faster decarbonisation path without needing to attract as much new equity investment, in effect reducing the impact of the financeability problem. Noting the importance of Net Zero delivery to our stakeholders and our concerns over the ability of Ofgem's proposed equity return to secure equity investment, we believe these proposed framework changes would provide some benefits and recommend them to Ofgem for inclusion in the ED2 settlement. In this regard, we would also point out that the customer bill impact of these changes would be an increase of £2.35 per annum over ED2, with the total average customer bill for ED2 of £79.60 (20/21 prices) still £10.15 (11.3%) below the average for ED1.

Whilst the cash and equity funding benefits of these changes are beneficial, these framework changes do little to alleviate the major underlying financeability issue – being the risk that we could fail to attract equity investment and raise debt finance when needed and accordingly, we see the proposed framework changes as being only a part of the proposed solution rather than the total answer.

Rating agencies and investors recognise that such framework changes typically only time-shift cash flows. The rating agencies typically adjust to remove the associated benefit of such changes during their rating and credit assessments.

Our financeability tests on the 'Actual company model with framework updates' ('FW Remedy') continue to show significant financeability challenges after these changes, continuing to fail all four tests (see Finance Annex 28, section 9).

7.4.2 The problems associated with an equity injection remedy

We have also considered whether it is appropriate for existing shareholders to inject cash into the business to restructure our debt financing and to reduce the projected underfunding over ED2. This has two key problems:

Firstly, as set out in our financeability assessment, we are concerned that equity returns are set too low for the notional company and this creates risk that we will not be able to attract the equity finance when needed. Restructuring debt now could theoretically make equity investment at a future date more achievable, but it does little to address our current concern, particularly as it simply crystallises the current debt financing cost and likely destroys current shareholder value due to the existence of spens[6] (or 'make-whole') clauses. In addition, a significant restructuring would deal solely with the result of the timing of past debt issuance, and would do nothing to reduce the risk of it recurring – in effect highlighting the risk to equity investors, particularly in small licensees, of the proposed debt allowance structure (as per below).

Secondly, we believe our financeability issues are a direct consequence of the proposed debt allowance methodology. This is based on a single notional company approach which is not suited to adequately funding an efficient cost of debt for a notional company with our particular characteristics, in particular those arising from being a smaller licensee. As put forward in our Alternate Cost of Capital Annex we believe there are a number of options available to Ofgem that would mitigate the effect of the current methodology and significantly help address our underfunding on debt. Many of the options available could (if Ofgem chose) be applied at a sector level and would then reflect a re-apportionment of the proposed sector allowances only, at no additional cost to GB customers (at least in respect of past debt costs). Significantly, these proposals would reduce the risk of future debt issuances leading to further underfunding, making future equity investment more deliverable.

As such, noting that our business plan already includes no dividend payments to shareholders in ED2, and that the notional company fails the equity allowance test, we have decided it is not helpful to propose a remedy that includes new equity investment.

7.4.3 The necessity for a higher cost of capital allowance

In conclusion, to address our financeability challenges and the risk posed to Net Zero delivery, we believe that it is necessary for Ofgem to set a cost of capital allowance in ED2 that is higher than its working assumptions.

Whilst this may increase our customers' bills in the short term, it need not necessarily increase the cost for GB customers as a whole. We also believe it is in customers' long-term interests to retain investor confidence in order to continue to access the long-term capital needed to finance the business.

We plan to work with Ofgem during the draft and final determination stages to further explore our actual financeability challenges and the options available to Ofgem to update the cost of capital methodologies to address this financing risk.

To this end, we have included an Alternate Cost of Capital Annex that discusses in detail both the issues we perceive with the current cost of capital allowance and the options available that we believe could alleviate our financeability challenges.

6 A spens clause is a provision in a security (for example a bond) which allows a borrower to repay the principal amount (and hence discharge their obligation to the lender) earlier than the contractual repayment date, on payment of a specified penalty, also referred to as a "make whole" payment, in excess of the principal (or face value) of the security.

7.4.4 The results of our financeability tests

We set out in Figure 50 the metrics we have used for our financeability assessment and discuss in the Finance Annex the rationale for these tests.

Figure 50: Summary of financeability tests

Financeability Test		Description	Notional	Actual
Test 1*	Debt	The company should be expected to maintain a credit rating of at least Baa1/BBB+ in the unstressed base case to provide an acceptable buffer to enable it to deal with unexpected market or other shocks.	Fail	Fail
Test 2*	Debt	The company should be expected to maintain an investment grade rating in a realistic stress scenario.	Borderline	Fail
Test 3*	Equity	The price control should provide an allowed equity return that is sufficient to attract new equity investment.	Fail	Fail
Test 4*	Equity	Equity investors should be reasonably likely to receive the agreed notional allowed return, and the value, or otherwise, of any incentivised performance. Ideally, to maintain confidence equity investors should not, in the ordinary course, be required to subsidise efficiently incurred past or future debt costs.	Pass	Fail

*The applicability of our Debt and Equity Financeability tests is set out in section 5 of the Finance Annex 28.

The two equity tests (as above) are supplemented by an assessment of the potential equity funding requirements, which considers the cash headroom and dividend capacity in the network to assess the likelihood that new equity finance is required during ED2.

The actual model does not include any dividend payments to shareholders in ED2. Under the Ofgem working assumptions for cost of capital, it is unable to de-gear to the new 60% notional target without equity funding (or outperformance) and, as a consequence, is forecast to trigger the tax clawback in FY28, further supressing equity returns.

In these circumstances, there is no cash or dividend headroom to absorb financial shocks. There is also no spare capacity to respond to a higher totex scenario, effectively limiting the scale of ED2 investment to the baseline plan in the event that further equity finance cannot be secured. This is an outcome which, at a time of an acceleration of the country's Net Zero ambitions, is not, we would contend, in the interests of customers.

The framework remedies we have requested above, do moderate these challenges, allowing us to de-gear to 60.7% by FY28 and providing capacity to support up to an additional £550m of network investment without securing new equity finance, assuming no dividends[7]. However, these framework remedies do not address the key financeability challenges.

7.4.5 Uncertainty Mechanisms

As noted in our Uncertaintly Mechanisms (UM), Annex 29, our investment capacity is critically dependent on the design of the UM that we have proposed, ensuring the provision of debt and customer funding at the same time that payment for investment is required. If the UM design is inadequate (for example, by mirroring the ED1 load mechanism), then this capacity would be reduced by almost 80%, putting further strain on the financeability of the company.

As a consequence of this potential impact, we will need to re-run our financeability tests once the design and operations of the Uncertainty Mechanisms are set by Ofgem.

7 Additional £550m investment would be delivered while maintaining gearing under the revised notional 65% level.

7.5 Setting a fairer price control

We believe that all stakeholders should work together to create business plans and a price control that works for both current and future customers, and is deliverable (both in terms of being practical for us to deliver on our commitments and of being financeable or capable of being funded). Our stakeholders have been very clear on the ambition they expect from us in ED2, including significant investment in Net Zero-related projects. We hope that Ofgem will be keen to set the financial parameters of this price control at a level that is sufficient both to attract the investment needed to support these plans and generally to retain long-term investor confidence.

Getting the balance right between supporting future investment and protecting customer bills today is of upmost importance.

In our session on finance that we held with our deliberative panel, the panel was in support of the following factors being considered in arriving at this balance:

- Intergenerational fairness. It is not appropriate to suppress bills in the next price control if it leads to problems and higher bills in the future.
- Net Zero roadmap. The investment required on decarbonisation projects in the coming years is a significant step change over what has gone before and must not be delayed.
- The value of protecting credit ratings. A strong, stable credit rating is important to ensure that we can access funding efficiently when required.
- Attractiveness of the sector to investment. Ensuring that shareholders receive a fair and predictable return is important to attract and retain patient long-term investors. This is important given the length of time that both debt and equity investors commit their cash to the business: confidence in the fairness of future price settlements is key. The more investment is needed, the more funding is required, and the more important it is that the sector remains attractive to investors.

We have used these factors in arriving at our business plan. The key to meeting the long-term Net Zero targets is flexibility and network investment. This is underpinned by the ability of networks efficiently to attract and retain both debt and equity finance.

It is also clear that financeability must be assessed with respect to both debt and equity finance. We do not believe that it is appropriate for one to be prioritised over the other. In particular, whatever rate is determined to be required to attract new equity to the business, equity investors need to be reasonably likely to receive this rate. If equity investors are being required (or at risk of having) to subsidise any underfunding on debt which has been efficiently incurred (including debt to be issued in the future) then this would undoubtedly be to the detriment of confidence in long-term network financing, of long-term investment, and, ultimately, against customers' interests.

By way of example, were there to be a significant interest rate rise in the near future, it would be impossible for us to judge the extent to which any future debt issuance would be recoverable over its duration, or whether, and by how much, equity would need to subsidise this debt issuance in the future. This level of uncertainty does not serve to support investor confidence. Larger licensee groups will be less exposed to this risk as a consequence of their more frequent profile of issuance and their increased relative weighting on the sector average allowance.

We discuss later the amount of importance that the credit rating agencies attach to the quality and fairness of the regulatory environment in assessing their ratings. Anything that affects this environment directly impacts on the cost of debt finance in the future, affecting customers through future bills.

7.6 Our financing

Progress on the Net Zero roadmap is of high priority to all our stakeholders, including local government. We can only be confident in our ability to deliver the ambition outlined in our plan, if we are confident that we can receive the new equity (and debt) investment required. This investment can only be attracted if investors are satisfied that our efficiently incurred debt costs have a reasonable prospect of being appropriately funded in ED2 and in future price controls, notwithstanding where they fall on the spectrum of debt costs and issuance timing within the industry and on their ability to influence the arithmetic mean of the sector.

Progress on the Net Zero roadmap is of high priority to all our stakeholders, including local government.

The regulatory price control includes allowances to cover a network's cost of financing. Ofgem has elected to set the same allowances for every network, to incentivise prudent and efficient financing decisions. While this approach is simple, it does not reflect the fact that licensee groups have very different costs of financing, particularly as a result of the variation in timing of past debt issuances, and different innate characteristics which affect their ability to manage their debt towards the sector average levels set. In particular, as a consequence of the approach being proposed, licensees have different costs and risks of under-performance, which are correlated to their size.

The proposal from Ofgem is to determine financing allowances based on a 'notional' network company, financed with 60% debt and 40% equity. The notional company is effectively a composite average of all licensee groups in the sector. However, not all groups are the same. The debt financing in the notional company is assumed to have been issued in equal amounts over the past 17 years. This assumption may potentially be suitable for large licensee groups that are at least of a size that allows them to issue benchmark debt, if not every year then, very frequently. However, this approach is not applicable for all networks. It is not economically efficient for a single licensee, with relatively smaller and less frequent financing requirements, to issue annually or anywhere close to annually. Hence a single licensee is unable to match the average of the last 17 years, or confidently match the average of the next 17 years[8].

8 Additional analysis included in Benefits and Costs of the Single Licence Model report by Economic Insights. In theory a smaller network could have set up a derivatives programme to try to match the average of the index period. In practice, we do not consider this either economic or feasible in credit terms, given the scale and duration of the programme. In addition, it would require certainty over the trailing period to be used, which, noting the different and changing indexation methodologies adopted across the energy sector since indexation was adopted would be effectively impossible.

Any incentive to issue debt efficiently and prudently can only deliver that aim if it is capable of being achieved through management decisions. Placing risks on to investors that they are not capable of managing only increases risk and therefore increases the expectation of returns, and therefore the long-term cost to customers.

It is not practical or economic to raise small amounts of cash to pay for the individual elements of our network investment. It is more efficient to raise finance in larger sums that will fund our investment programme over many months and years. This is because, in general, the UK public bond market prefers debt to be issued at a minimum size of £250m, as these issuances are typically eligible to be included in many 'benchmark' indices, including the iBoxx Utilities index[9]. This increases the number of investors that can buy and hold the bonds (many investors are not allowed to invest in sub-benchmark sized issuances, which significantly reduces the amount of debt available in the less liquid, sub-benchmark sizes) and increases the likelihood of a more competitive bond tender process and reduced new issuance premia. An independent third-party, Frontier Economics, has demonstrated that issuance and illiquidity costs are proportionally lower for benchmark sized issuances[10], reducing the financing cost per pound borrowed for our customers.

It is no surprise then that we have several high value bonds in issue and that these bonds have been issued over the past 25 years or so, to match the asset lives of the investments. These bonds have not only financed new, or recent, investment, but also have refinanced our older borrowing as it matured, giving rise to a profile of debt issuance that is specific to our business (including our relative size) and past customer needs. The relevant characteristics of each individual network will differ meaning that, across the industry, no two networks will have the same debt profile or portfolio.

It is to be expected that, given the long underlying asset lives, we have debt on our books that was raised at a time when interest rates were higher than in subsequent years (i.e. before the 2009 financial crisis brought quantitative easing into being). As a result of the long-dated maturity of our debt and high break costs (both of which are standard in the market), coupled with our size/investment profile, we have been unable (until recently, and then only for smaller sums) to take much advantage of the current unusually low interest rates – this crucially differentiates us from larger companies or groups that are more likely (or at least able if they so decide) to be issuing debt on a more frequent basis.

7.6.1 Inflation linked financing

Not only does the duration and maturity of bonds vary by licensee, so does the use of inflation linked bonds and nominal bonds.

The interest payment on nomina" bonds can be viewed as containing two elements – a real return, plus a payment for inflation. Only the real return is compensated in cash terms through the revenues of a licensee. The inflation element of interest payments is compensated by Ofgem applying an inflation adjustment to the Regulated Asset Value (RAV).

We, as a company have therefore generally mitigated this inflation risk by borrowing, using inflation linked financing, typically index linked"bonds, rather than nominal rate bonds, as this matches the interest cashflows with allowed revenue more closely. It also means that we do not need to be constantly raising small amounts of debt in the market each year to match the inflation growth in the RAV (to maintain the gearing level as the RAV grows) – as a smaller infrequent issuer, these small debt raisings would be particularly inefficient. Whilst more recently we have used index linked bonds to match this risk, we have in the past achieved the same economic risk reduction by using a combination of nominal bonds and index linked derivatives to create a combined proxy or synthetic index linked bond. Whilst we cannot comment on the structures of other licensee groups which are often part of larger multinationals, managing the risk of inflation is an important facet to ENWL as a single licensee.

9 Markit iBoxx GBP Regulated Utilities Index Guide, March 2021 (https://www.markit.com/Company/Files/DownloadFiles?CMSID=b98647b8c0ff4467a29c74313a72c4c2).
10 Transaction Cost Premium for Infrequent Debt Issuers, September 2020, Frontier Economics.

7.6.2 Structural differences to the notional company

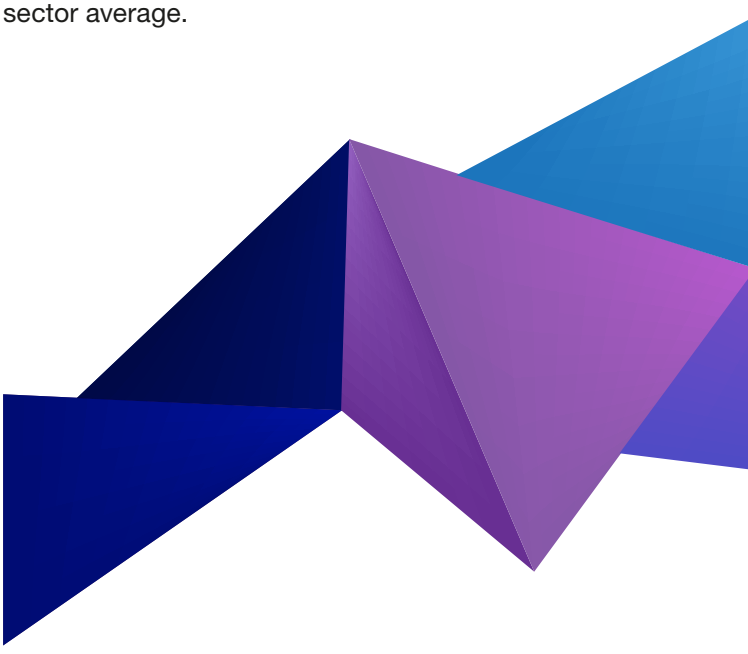
As a result of these factors, we have a mismatch between our debt profile and that of the notional company. Our debt costs happen to be higher than those of the notional company, but, if our refinancing had historically fallen at a different time in the economic cycle, these could equally have been lower. This is not because we hold more debt. Instead it is because the characteristics of our business and the impact that has on our financing activity differ from the assumptions used for the notional company and restrict our ability to manage ourselves towards the notional company 'average'.

The structural reasons why we are unable to match the notional company, or sector average, include:

1. We have a higher level of RPI inflation linked borrowing (approximately 60% including derivatives), to minimise inflation risk and more closely match our interest cash payments to the real ('without inflation') debt allowance. Ofgem has proposed to change the inflation measure from RPI to CPIH from ED2 and this change will impact the financing costs for networks with RPI linked debt. Ofgem has proposed to increase allowances to compensate the sector for this impact. The Ofgem proposal is to uplift the debt allowance by five bps for all networks based at the average level of inflation linked debt in the sector (approximately 25-30%). As this is a regulatory change, signalled well after the RPI linked framework was put in place, we believe that it should be applied to each licensee according to the actual level of RPI linked debt held. This would be at no overall cost to GB customers, only a reapportionment of the allowance between networks, given that the sector cost is already included in the proposed settlement.
2. As an infrequent issuer, we suffer structurally higher costs than the larger networks and network groups. We therefore incur higher financing costs than the sector average. The alternative to being an infrequent issuer would be to issue below benchmark debt at a higher cost, or to use derivatives to attempt to achieve an average index rate. In both the latter cases, we are unconvinced that there would be sufficient market willingness for either the credit lines or the volume of off-benchmark debt that this would entail.
3. The notional company allowance is aligned to the average debt cost of the sector. Smaller, less frequent issuers are less likely to be in line with this average, even taking into account the additional costs noted above in the second point. This is because we issue less frequently and are therefore more likely not to hit the average of a 17-year trailing index and because, contributing only 1/14th of the sector average, we have a smaller arithmetic influence on the average.

Of these, our first point represents a regulatory change that is not under the control of the network, while our second point reflects a structurally unavoidable higher cost that we face as a consequence of our relatively smaller size.

Our third and final point relates to the structural design of the single notional allowance. The concept of a single debt allowance was created before the unprecedented and prolonged fall in financing rates which have occurred since the financial crisis and the subsequent rounds of quantitative easing. This unforeseeable market change, combined with the tendency of UK infrastructure to raise finance at long-dated tenors, has increased both the probability of a network (and especially a smaller licensee) being an outlier on funding costs and increased the likelihood that the funding gap will be material. This risk is not uniform across the sector, with large networks and groups likely to track much closer to the average – due to frequency of issuance and weighting in the sector average.

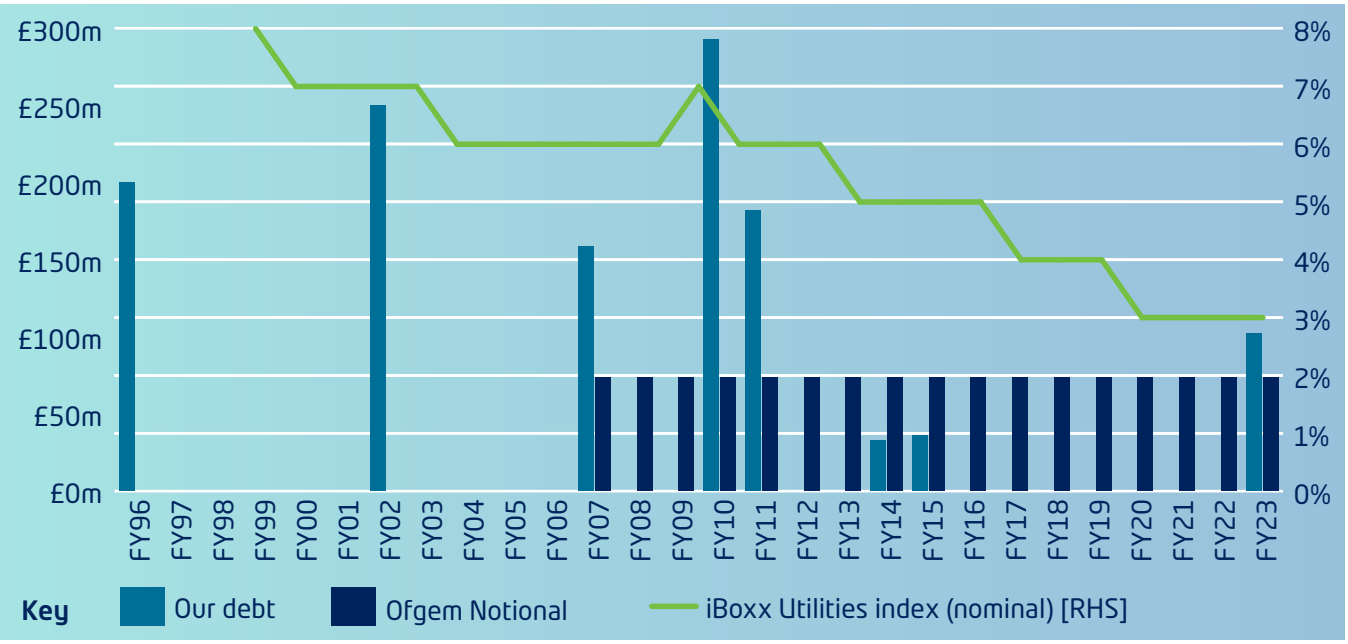


7.6.3 Our debt issuance profile compared to the notional company

The chart below shows the forecast profile of our debt financing at the start of ED2 compared to the notional company. Our debt shows the economic timing of our issuances[11], incorporating in particular the effect of derivatives used to create proxy index-linked debt.

Whilst we have consistently raised finance efficiently, we have a high portion of our debt issued prior to the specification of the notional company used in Ofgem's ED1 price control methodology, and issued at times when the market rates for financing were more expensive, i.e. before the financial market crisis. We explain later in our plan how this mismatch creates financeability issues for us in ED2.

Figure 51: ENWL debt



To better understand how this mismatch leads to an underfunding position, it is helpful to analyse the costs and allowance on a nominal (with inflation) basis. This approach compares our total level of funding with our total debt costs.

As we noted above, inflation is stripped out of the cash debt allowance we receive and is instead added to our Regulatory Asset Value (RAV) each year. Our nominal debt allowance includes both the cash debt allowance and the inflation increase on the debt portion of our RAV.

From a debt cost perspective, the interest rate on fixed and floating rate debt includes inflation and therefore the nominal cost of this debt is equal to the cash interest cost. On inflation-linked debt, inflation is excluded from the cash cost and added to the balance outstanding (i.e. an approach similar to the debt allowance approach). Therefore, to calculate the nominal cost of this debt it is necessary to add both these elements together.

11 Note that our smaller issuances principally relate to EIB financing and intercompany loans.

7.6.4 The resultant underfunding of our debt costs

On a nominal basis, we believe that Ofgem's approach will result in us being under-funded by approximately £90-95m in ED2. This is consistent with the underfunding position shown in the Actual company model:

Figure 52: Summary of underfunding

Nominal, £m	FY24	FY25	FY26	FY27	FY28	Total	Average
Debt allowance	61.6	62.2	63.4	64.2	64.7	316.0	63.2
Forecast debt cost	83.2	79.7	89.6	76.5	80.7	409.6	81.9
Underfunding	**(21.6)**	**(17.5)**	**(26.2)**	**(12.3)**	**(16.0)**	**(93.6)**	**(18.7)**
Allowance rate (%)	4.60 %	4.35 %	4.15 %	3.95 %	3.75 %		4.16 %
Finance cost (%)	6.21 %	5.58 %	5.87 %	4.70 %	4.68 %		5.41 %
Underfunding (%)	**(1.61)%**	**(1.23)%**	**(1.72)%**	**(0.75)%**	**(0.93)%**		**(1.25)%**

We highlight that we have removed £18m from our forecast debt costs in respect of bonds that were issued at a premium in 2001/02 and therefore carry a higher ongoing interest cost than would otherwise have been the case. We do not believe it is appropriate for our customers to cover this higher interest rate and have excluded it from our underfunding estimate. In effect, we have deemed these costs "inefficient".

Moving on to the return that our shareholders receive, the equity return. This is calculated by Ofgem using market data from a small number of different listed utility companies. These listed companies typically have a broad range of regulated and non-regulated operations and are not a good representation of the RIIO-ED2 networks.

As such, we believe it is also appropriate for Ofgem to consider adjustments to the calculated equity return to reflect the differences in sector risk, and potentially also the specific characteristics of individual networks, for example, if network size meant that a network was more likely to be underfunded for its debt costs.

7.7 How we manage finance risk

Figure 53: Key finance risks faced by networks and how we manage those risks

Description	Management approach
Refinancing Risk	
The risk that networks cannot raise finance efficiently when needed. This risk is greatest during periods of market disruption, such as during the 2007-2009 financial crisis.	**We aim to maintain a 'comfortable' investment grade credit rating of Baa1/ BBB+.** During periods of uncertainty, there is often a 'flight to quality' when investors will only invest in higher rated companies. Maintaining a strong investment grade rating reduces the risk that we will be unable to secure financing during these periods. There is never a guarantee that this will be the case and we always therefore try to raise financing 12 months in advance of it being required (below). We took advantage of this contingency/risk management period when we had to delay a planned refinancing in March 2020, due to the market disruption associated with the COVID-19 pandemic. **This credit rating target is a key component of our debt financeability test discussed later.**
Liquidity Risk	
The risk that networks do not have enough cash or facilities available to meet payments falling due.	We maintain cash and bank facilities to cover the next 12 months of operations. This includes the repayment of any borrowing falling due. Whilst there is a cost associated with the early financing and/or committed bank facilities needed to achieve this, this policy ensures that we should not run out of cash even if there is market disruption lasting for months, at a time when we need to raise money. **Managing liquidity risk incurs a cost. Ofgem has estimated that other financing costs are 25bps and has provided an uplift for this amount in the proposed debt allowance. We have included this working assumption of additional costs in our model.**
Interest Rate Risk	
The risk that interest rates rise sharply, increasing the cost of floating rate debt and debt financing costs.	Our policy is to hold only a small amount of floating rate debt. This is typically on our revolving bank facilities. Our debt financing is largely UK public bonds, which have interest rates fixed at time of issuance. **Ofgem assumes a relatively high proportion of floating rate debt when calibrating the debt allowance. We do not feel this is appropriate, as it exposes the financeability of the company to sudden upward interest rate movements.**
Inflation Risk	
The risk that inflation falls, reducing both our cash flows and the level of debt financing available.	We receive a 'real interest rate' (i.e. excluding inflation) debt allowance in cash. Inflation is added in addition to the value of our regulatory asset value (RAV) Index linked debt also has inflation stripped out of its annual cash payments, with inflation added to the loan amount. This means the loan amount is growing in line with the RAV. Having a high proportion of index linked debt ensures that our financing costs are matched closely with the price control's indexation. Holding a fixed rate nominal bond(s) and a derivative(s) together achieves the same result. In comparison, holding nominal debt results in a cash shortfall, that is effectively subsidised through additional borrowing, against the inflated RAV. **We hold approximately 60% of index-linked debt including derivatives. Derivatives are a critical tool in risk management, can be used where index linked debt is not available, and help manage inflation risk. Matching the debt allowance structure with inflation linked bonds both reduces inflation risk and reduces the need for very small frequent issuances to fund the business.**

7.8 Our financeability assessment

Ofgem's guidance for the RIIO-ED2 business plan includes a requirement for our Board to conclude as to whether or not the business plan submitted is 'financeable'.

While Ofgem does not explicitly restrict this assessment to debt financeability, the guidance and tools provided to networks, including a 'rating simulator' included in the Business Plan Financial Model (BPFM), are weighted heavily towards looking at credit ratings and the debt investor perspective.

As we need to fund investment with both debt and equity, particularly when significant investment is required (as is now the case), we believe that this focus is too narrow. To be able to secure the financing that we will need, each component of the cost of capital will need to be provided with an appropriate return for the risks run by each of debt and equity investors.

We also do not consider that our Board can base this financeability assessment solely on a notional company as currently defined. Whilst it may be a valid starting point, we do not believe that it provides an accurate and reliable assessment of our future credit rating or equity returns. Investors, do not invest in a notional company, they invest in real/actual companies and rating agencies rate real/actual companies. This is particularly evident if the notional company does not reflect the characteristics of the actual company.

We have therefore conducted our financeability assessment based on:

- Notional and actual company models;
- A credit rating assessment for each agency that captures the key metrics for each and applies agency specific adjustments where required; and
- Our four financeability tests as outlined.

This assessment is concluded by considering the potential equity funding requirements, which considers the cash headroom and dividend capacity in our business to assess the likelihood that we require new equity finance during ED2.

We believe that our approach more closely represents the likely view of the commercial arena in which we operate. We believe that it is the most appropriate view by which stakeholders can judge our financeability. The details of the modifications that we have felt necessary are outlined in the Finance Annex 28 section 5.

Figure 54: Results of financeability tests

Test and description	Results	Notional	Actual
Test 1 The company should be expected to maintain a credit rating of at least Baa1/BBB+ in the unstressed base case to provide an acceptable buffer to enable it to deal with unexpected market or other shocks.	**Notional** Key cash interest cover ratios are below target for two agencies. Expected rating = BBB, below the Baa1/BBB+ requirement. **Actual** Clear and significant shortfall against key rating metrics. Expected rating = BBB/BBB- for two agencies.	Fail	Fail
Test 2 The company should be expected to maintain an investment grade rating in a realistic stress scenario.	**Notional** Assessed as likely BBB-/BB+ in downside scenario. **Actual** Assessed as BB+ and breach of licence conditions in a stressed scenario.	Borderline	Fail
Test 3 The price control should provide an allowed equity return that is sufficient to attract new equity investment.	**Notional and Actual** Ofgem's proposed allowed return on equity of 4.40% is below all our relevant reference points (shown below). This is critical at a time when the sector may have to increase investment significantly to support Net Zero and require additional funding above the baseline plan: • 4.65% – reflects the removal of the proposed outperformance wedge, consistent with CMA findings for the GD&T2 appellants • 4.79% – the equity return needed to deliver Adjusted Interest Cover Ratio (AICR) of 1.40x for the notional company at our baseline plan • 4.99% – the 75th percentile of the Ofgem equity range • 5.81% – the minimum return proposed by Oxera in its analysis prepared for the ENA	Fail	Fail
Test 4 Equity investors should be reasonably likely to receive the agreed notional allowed return, and the value, or otherwise, of any incentivised performance. Ideally, to maintain confidence, equity investors should not, in the ordinary course, be required to subsidise efficiently incurred past or future debt costs.	**Notional** Equity holders receive the allowed return, but only because there is no debt subsidy required in the notional company (given the assumption that debt allowances equal actual debt costs). **Actual** The forecast return for our shareholders is 1.4 percentage points below the notional allowed return, as a result of equity having to fund efficiently incurred debt costs. We highlight that this result assumes no significant rise in market expectations of interest rates.	Conditional Pass	Fail

7.9 Addressing the financeability issue

Review of Equity Funding Requirements: Our Actual model does not include any dividend payments to shareholders in ED2. It also cannot de-gear to the 60% notional target without equity funding (or outperformance) and is forecast to trigger the tax clawback in the FY28, further supressing equity returns.

As a consequence, there is no cash or dividend headroom to absorb financial shocks. There is also no spare capacity to respond to a higher totex scenario, effectively limiting the scale of ED2 investment to the baseline plan in the event that further equity finance cannot be secured.

Based on the above tests and assessment of potential equity requirements, we have concluded that our business plan does not appear to be financeable under the current working assumptions for cost of capital.

As detailed above, we believe that both the notional and actual companies would be downgraded to Baa2/BBB in RIIO-ED2 under Ofgem's working assumptions. We also believe that under certain stress scenarios, the actual company would be likely to be downgraded to below investment grade.

To address the financeability gap, we have considered a range of potential mitigating actions, including a mix of financing and regulatory framework mechanisms. These are discussed in detail in the Finance Annex.

We recommend the implementation of two framework changes:

- Decrease regulatory capitalisation rate to 65% from 68%. This is approximately three ppt below our forecast statutory capitalisation rate; and
- Maintain notional company gearing at 65%. This keeps the proportion of equity and debt financing of the business at ED1 levels.

These changes would improve our ED2 cash flows and provide some capacity for us to respond to a faster decarbonisation path without needing to attract new equity investment, if that uncertainty comes to pass. Noting the importance of Net Zero delivery to our stakeholders and our concerns over the ability Ofgem's proposed equity return to secure equity investment, we believe these proposed framework changes would provide significant benefits and recommend them to Ofgem for inclusion in our ED2 settlement. The inclusion of these framework changes would result in an increase in our domestic customer bills of £2.35 per year, but this would still mean that on average domestic customers are paying £10.15 (11.3%) less than in ED1 (20/21 prices). This is against a backdrop of our customers having told us that they would be willing to pay an additional £9.80 over ED1 levels to achieve our business plan.

Whilst important to improve our cash flow position and reduce gearing levels to below the notional company level, these framework changes do little to alleviate the underlying financeability issue – being the risk that we could fail to attract equity investment and to raise debt finance when needed. Rating agencies and investors recognise that framework changes typically only time-shift cash flows and they generally make adjustments to remove the associated benefit of these during their rating and credit assessments.

This is demonstrated in our financeability tests on the actual Model with framework updates ('FW Remedy' model) which continues to show significant financeability challenges after these changes, with all four tests failed (see Finance Annex 28, section 9).

We have then considered whether shareholders should be asked to inject more cash into the business. This cash could be used to restructure our debt financing to match more closely to the notional company debt costs. However, this would have to be a very substantial injection to reduce sufficiently the interest cost and improve the interest cover ratio. Not only would this be economically irrational, given our debt financing structure, it would also simply exacerbate the equity financeability issue, as we would be asking equity to invest at returns below the allowed return.

We would also be concerned about the wider implications for investor confidence in the sector, and therefore the long-term interests of customers. In effect, equity would be being asked to inject significant additional money, because of the underfunding of efficiently incurred debt costs and as a result of the use of a notional company which is not representative of our characteristics. In particular, as it would not address this latter point, it would leave in place the risk of underfunding of future debt issuances.

Simple return levels are not the only factor important to equity investors. Certain investors, including many pension funds, often require investments that deliver a steady return of capital through dividend payments. We would highlight that this business plan model assumes that no dividends will be paid in RIIO-ED2. This is a strong demonstration of shareholder support to our ED2 plans and the North West. However, as the lack of dividends is driven by the debt allowance mechanism working to underfund us for our efficiently incurred cost of debt, regardless of our operational efficiency, this represents a further concern in connection with the investment proposition for future investment.

7.10 The average domestic bill impact of our ED2 plan

The average annual bill for our domestic customers in ED1 is forecast at £89.75 (2020/21 prices).

Based on Ofgem's working assumptions for the debt allowance and equity return, and ignoring any tax clawback, the forecast average bill for our domestic customers in ED2 would be £77.26 (2020/21 prices), a decrease of £12.49 (13.9%).

As highlighted above, we believe that we face significant financeability challenges under these working assumptions. While lower returns and allowances may provide a short-term benefit in bills, we do not believe the reduction in investor returns proposed by Ofgem is in the long-term interests of our customers and it risks being offset by larger bill rises in ED3 and ED4.

We consider an upper range for the potential bill impact associated with addressing our financeability challenges as £7.54[12]. Consequently, even at this point in the range, our customers would still see a significant saving of £4.95 per year (5.5%) over ED1.

The roadmap to Net Zero requires significant investment in the ED2 price control, that ramps further and beyond, and our business plan reflects the high level of ambition desired by our stakeholders, clearly evident in the 33%+ increase in planned network investment. Our strong focus on cost efficiency and risk management allows us to deliver this without any sharp increase in bills: we highlight the approximate £3.31 reduction in bills achieved through effective management of pension deficit repair costs as an example.

Figure 55: Domestic bill impact

2020/21 prices	Domestic Customer Bill (£)
ED1 average per annum	**89.75**
ED2 average (before framework remedies) per annum	**77.26**
ED2 vs ED1 reduction	(12.49)
Percentage reduction (%)	(13.9)%
Impact of recommended framework remedies on domestic bills	
Impact of moving to 65% regulatory capitalisation rate	2.44
Impact of maintaining notional gearing at 65%[13]	(0.09)
ED2 average (after framework remedies) per annum	**79.60**
ED2 vs ED1 reduction	(10.15)
Percentage reduction (%)	(11.3)%

Our Plugged In Panel was supportive of our engagement in this area and 74% voted that an increase in customer bills would be acceptable to pay for higher financing returns.

We take any proposal that impacts our customers very seriously, both in respect of the short-term and long-term bill implications. For the reasons outlined in this section, we would hope that we have put forward cogent and strong arguments as to why it is appropriate for Ofgem to reconsider how the cost of capital allowances are set for ENWL.

Our business plan reflects a significant change in investment. Including our proposal for framework changes, we are able to deliver this for a bill of £79.60, still £10.15 below/over our average bills in ED1.

We believe this represents excellent value for our customers, while also providing the financial security and returns needed to attract this critical investment.

12 The two framework changes recommended would cost £2.35, with the upper range in respect of cost of capital options (as discussed in the Alternate Cost of Capital Annex) at £5.19.

13 Bill impact has been modelled assuming no change in WACC. If our proposal to maintain gearing at 65% is accepted, Ofgem would need to calibrate appropriate debt allowance and equity return values on this basis, which may lead to a different bill impact.

In this section

Section 8

Regulatory detail

We've carefully designed a number of uncertainty mechanisms so that customers only pay for investments as they're needed. Not only does this significantly bring down our baseline costs so that we can offer significant reductions on bills, but it also protects customers and ensures the efficient delivery of outputs.

Given the complexities of a price control, there are a range of mechanisms that need to be developed to ensure that the following aims are achieved:

- we have suitable arrangements for dealing with future uncertainties;
- it is clear what we will deliver and what will happen if we don't; and
- where and how incentives will operate through the price control.

For our final business plan submission, we have developed several ENWL-led proposals that provide workable solutions to deliver the aims set out. This includes areas where currently there are gaps or insufficient detail in the regulatory framework for ED2. The summary of these and other regulatory details are set out in this section and supporting documents.

8.1 How we'll deal with uncertainties

Our sector is entering a period of fast-moving change that means there are increased uncertainties around our plan that we simply do not yet know. We make forecasts and assumptions as accurately as possible, but given the significant change expected in our sector it is not always possible to know what will happen for certain.

ED2 represents a period of new challenge for the sector. The speed and degree of change required to facilitate a successful transition to Net Zero is increasing significantly which adds to the challenge of delivering on our customers' and stakeholders' priorities identified through our enhanced engagement as part of our ED2 business plan development.

To address these new challenges in our business plan, we have embraced the use of fast-acting uncertainty mechanisms which are agile to need and provide timely remuneration of costs, aligning funding and activity to the year it is required. In general, we would normally opt to adopt upfront (ex-ante) baseline funding for activities which gives us strong incentives to seek to be as efficient as possible and reduces the administrative burden on stakeholders. However, we recognise that consumer needs in ED2 are different and have adapted our approach in this plan to utilise uncertainty mechanisms accordingly.

In our plan we have developed workable solutions where the activity to be delivered is significantly dependent on, or impacted by, factors outside of our control[14], and there is the potential for the timing, volume of activity, and/or the need to be uncertain. The mechanisms we have proposed are a mixture of those that are proposed to be common to all DNOs, and others that are bespoke to ourselves to reflect the particular operational challenges within the North West.

Our final business plan has been developed on the basis that these solutions are accepted by Ofgem. Any changes to how uncertainty is managed compared to our proposals will mean we will need to put forward business plan changes to Ofgem once we understand the final intentions for how mechanisms will work. We seek to continue to work with Ofgem so that our proposed uncertainty mechanisms can be agreed and included in our draft and final determinations.

Should Ofgem advise different treatment of uncertainty to our proposals then we will need additional ex-ante costs to be allowed in our final determination to ensure our customers and stakeholders can be secure in the knowledge that their needs will be met in a timely manner.

Ultimately the approach we have set out in this document and in our wider plan ensures that the Net Zero transition, as well as the outcomes our customers and stakeholders have told us they need, can be delivered.

The remainder of this section sets out the summary of our approach to managing uncertainty in ED2. This is further supported by Annex 29 which sets out the full details of all our proposals to manage uncertainty for the period of ED2.

14 Examples of factors outside of our control could be changes to central government policy, regional stakeholders or general changes in customer behaviour.

8.2 How we have developed our proposals

We have continued to work actively with Ofgem on the detailed definition and design of uncertainty mechanisms ahead of ED2. Clearly this is becoming a more urgent process. To support Ofgem in its framework development we have included:

- Workable solutions to areas where further detail in the current regulatory framework for ED2 is needed.
- Our views on some of the Ofgem suggested ways of dealing with uncertainty and set out targeted amendments and additional details which aim to enhance the proposed framework.
- Bespoke mechanisms that we require to be included to deal with the circumstances we operate in within the North West.

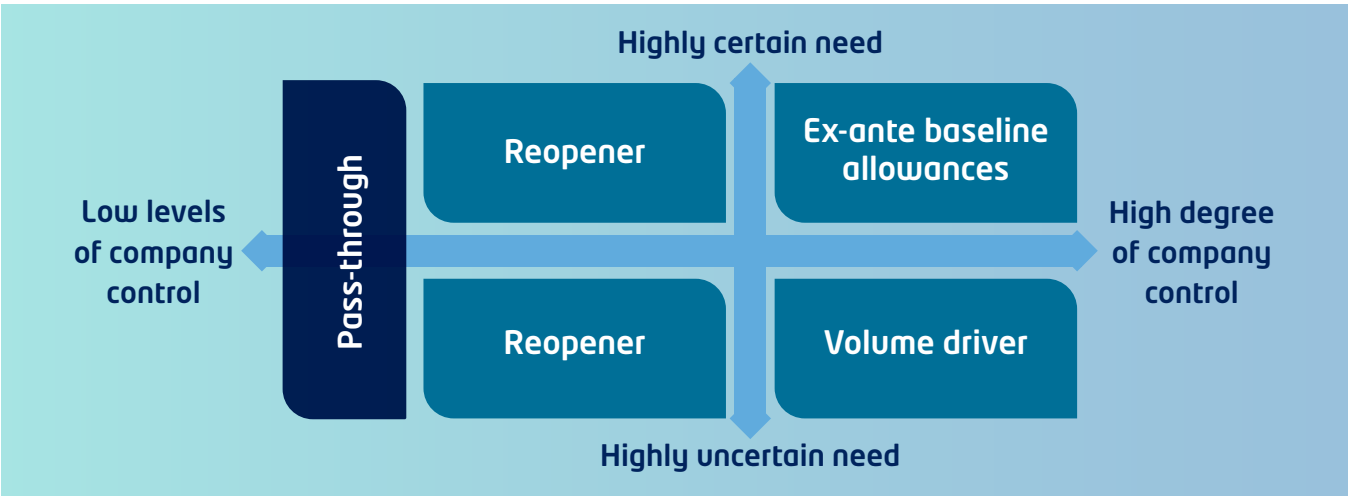
In determining whether a cost area or activity requires an uncertainty mechanism, and what type of mechanism is applied, we have applied a principle-based approach which we have set out below. This principle-based approach simply considers:

- the ability of the company to control the cost or volume of activity required;
- the ability for the regulator to know what an efficient cost or level of activity should be; and
- the materiality i.e. is the activity or cost sufficiently meaningful that an uncertainty mechanism is required.

Generally, the types of uncertainty mechanisms that we and Ofgem are considering for RIIO-ED2 take a range of forms including:

- **Pass-through** – these are items outside company control but where it is certain that they are required; such as the fees we pay to Ofgem to fund their regulation activities.
- **Volume drivers** – where the efficient cost per activity or outcome is known but the level/scale of the activity or outcome is unknown; volume drivers adjust or flex to allow for material changes in the volumes required.
- **Re-openers** – the company usually sets out to Ofgem the activities and outcomes, alongside the efficient costs to deliver them and why the additional cost or volume of activity is, or has been, required.
- **Indexation** – for a limited number of cost allowances it is also necessary to consider if the cost area should be specifically indexed. Indexation is where the scale of costs and volumes is known, but it is also known that the costs will change in a way by reference to a measurable index. The index scales the costs up or down to calculate that the efficient costs are in future years when incurred. This is usually undertaken on an annual basis.

Figure 56: How uncertainty mechanisms might be applied in principle



- **Use-it-or-lose-it (UIOLI)** – these are allowances that are allocated to be used in defined circumstances, situations or for specified activities. Because the costs are ring-fenced to a clear definition, they can't be transferred or reallocated and companies have two options; to use the allowance if the situation or circumstances requires or, if not required, to return the allowance to customers.
- **Logging-up** – this is a process by which a DNO is fully compensated for actual activity and expenditure on a certain activity over a specified period (preferably annually).

8.2.1 Our bespoke uncertainty mechanisms

The regulatory framework allows for us to submit ENWL-specific uncertainty mechanisms which only apply to us and our unique operating circumstances reflecting our region, these are known as 'bespoke' uncertainty mechanisms.

In our final business plan, we have developed several uncertainty mechanisms which are workable solutions that could apply to all DNOs or ENWL only on a bespoke basis. Additionally, we have included one purely bespoke uncertainty mechanism that should only apply to us given the circumstances in our operating region in the North West and relates to the prospect of nuclear development on the west coast of Cumbria.

The table below (Figure 57) summarises our bespoke proposals for uncertainty mechanism included in our final business plan and set out in detail in Annex 29. All bar our Moorside proposal could be adopted as common mechanisms for all DNOs should Ofgem deem this to be appropriate.

Figure 57: The areas for uncertainty mechanisms proposed by ENWL for RIIO-ED2

Area	Type of Uncertainty Mechanism	Existing or new for ED2 (as proposed by ENWL)	Our comments
Load-related expenditure	Ex-ante and re-opener	Existing – revised from ED1	Detailed proposals set out in Annex 29, Appendix A and Annex 3.
LCT LV Service Solutions	Ex-ante and Volume Driver	New	Detailed proposals set out in Annex 29.
Wayleaves and Diversions	Multiple	New	Multiple mechanisms to cover the volume uncertainty in ED2.
Ash Dieback	Volume Driver	New	Annual volume driver based on cost per class four tree felled only.
PCBs	Volume Driver and logging-up	New	Annual volume driver based on separate cost per GMT and PMT replacement for PCB contamination.
Distribution Net Zero Fund (DNZ)	UIOLI	New	To be common for all DNOs and for ENWL covers Community Energy and Decarbonisation support.
Net Zero and re-opener Development Fund (NZARD)	UIOLI	New – based on RIIO-GD/T2	Covering small Net Zero facilitation projects including LAEP support and early development work on projects that licensees intend to bring forward under specific re-openers.
Moorside – nuclear development in Cumbria	Re-opener (Bespoke)	Existing – revised from ED1	Updated from our ED1 mechanism to cover large and small modular nuclear reactor development in ED2 under both transmission and distribution connection scenarios.

8.2.1.1 Load uncertainty

The biggest example of the need for an uncertainty mechanism is the speed of the transition to Net Zero. This will impact the demand for electricity and the load on our network and the level of required investment in Load-related Expenditure (LRE) in the ED2 period. We have made assumptions based on sophisticated modelling to reflect this as accurately as possible in our plan however it remains uncertain. Section 4.1 discusses our forecasting and scenarios approach in more detail and section 6.3 details the DFES outcomes that result from this.

Our costs for managing the network are agreed through a business planning and price control process before the price control starts in 2023. This means that we have to predict now what will happen in our region and how much investment is needed up to 2028. There is a risk that the business is either under or overfunded depending on what actually happens.

We have also considered how the constraints to low carbon technology (LCT) adoption caused by service related constraints at domestic premises can be best managed. The uncertainty over LCT take-up, location and customer behaviour will all affect the volumes of work required during ED2.

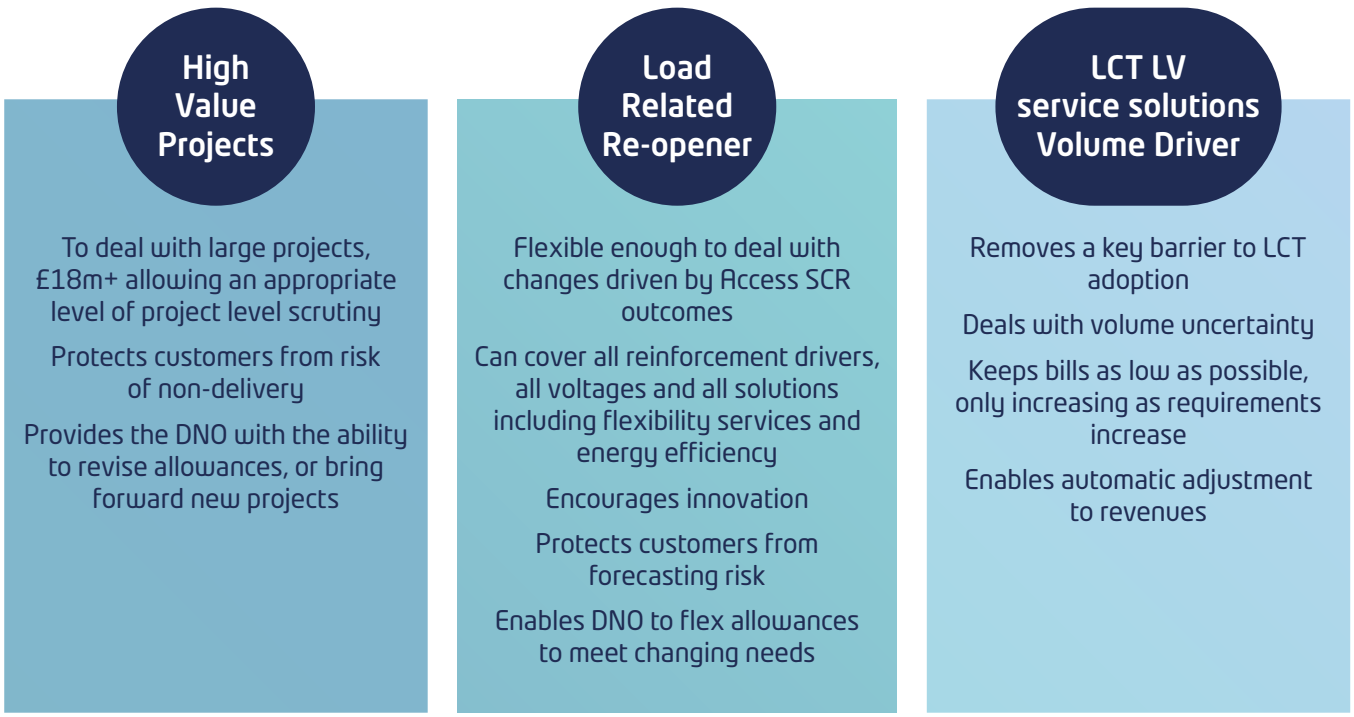
Our proposal to manage this uncertainty takes a holistic look at all the components of LRE and delivers the Ofgem aim of simplification and automatic adjustments in the price control where possible. This comprises three key mechanisms, each dealing with uncertainty in a slightly different manner. These three combined are complementary and provide a whole solution to the range of load-related expenditure that may be incurred. The three components are shown in Figure 58 below:

8.2.1.2 Moorside

In our ED1 framework we have a bespoke uncertainty mechanism to manage the impact of major changes required to our network should new nuclear generation connections take place near Sellafield in Cumbria. To date we have not used this as additional allowances haven't been required as the need has not arisen. This is a great example of where an uncertainty mechanism has worked well for all stakeholders and customers.

In ED2 there continues to be the potential for new nuclear generation to be developed in this area, which by its nature is large and would necessitate major works on our network to facilitate this. Additionally, in ED2 with the drive for innovation in nuclear technology and to support the transition to Net Zero, the type and form of development is uncertain with Small Modular Reactors (SMRs) a possible scenario.

Figure 58: Mechanisms to manage load uncertainty



As in ED1, this is not certain to be required, so we are not requesting any baseline allowances and instead propose a continuation of a bespoke uncertainty mechanism (our ED1 Moorside condition).

We have updated this mechanism so that it best reflects the circumstances and uncertainty for ED2. We have set out the details of this in our Annex 29 on managing uncertainty and we are keen to work with Ofgem to ensure that this uncertainty is managed effectively for the period of ED2 as it has in ED1.

8.2.2 ENWL-led proposals for common Ofgem uncertainty mechanisms

The regulatory framework we operate in includes several standard common 'uncertainty mechanisms' to facilitate managing change in a price control period. To support the wider framework development we have proposed additions, amendments or increased detail to these common standard uncertainty mechanisms. The table below sets out all the common standard uncertainty mechanisms with many of these being revised or new for ED2. These are covering uncertainties that Ofgem acknowledges are present for the period of change we are moving to.

Where we have proposed amendments or additional detail to these mechanisms to support clarity and wider framework development these are also summarised in the table below.

Figure 59: The areas of ENWL-led proposals for common Ofgem uncertainty mechanisms for RIIO-ED2

Area	Type of Uncertainty Mechanism	Existing or new for ED2*	Our comments
Net Zero	Re-opener	New	Should have the same scope as has been defined for the other RIIO-2 sectors with a zero-materiality threshold as well as being able to be DNO triggered.
Electricity System Restoration	Re-opener	New	To explicitly also cover requirements arising from the Distributed ReStart project covering distributed energy resources.
Environmental Legislation	Re-opener	New	We set out our proposals on the detailed scope of the re-opener in Annex 29.
Access SCR reform – our proposal 'Regulatory Driven Change' re-opener	Re-opener	New	We propose this is broadened to a Regulatory-Driven Change re-opener covering uncertain incremental costs incurred as a result of Ofgem or government Regulatory-driven change.
DSO	Re-opener	New	Covering Ofgem required changes beyond baseline requirements within the ED2 period, including outcome of full chain flexibility work and governance and structural arrangements.
Specified Streetworks	Re-opener	Existing	Extended to cover removal/withdrawal of Regulatory Position Statement 211 (RPS211) on contaminated spoil waste stream from streetworks excavations.
Smart Meter Rollout costs	Volume Driver	Existing	Remove the tapering factor and the end date for the mechanism as well as a review of the baseline intervention rate.
New Transmission Connection Charge (NTCC)	Pass-through	Existing	Removed from load-related re-opener and treated as pass-through.
High Value Projects	Re-opener	Existing	Set the materiality threshold at £18m in 20/21 prices.
Cyber resilience	Re-opener	New	One window only, and to be able to be triggered by DNOs and Ofgem.
Returns Adjustment Mechanism (RAM)	Other	New	We don't think RAMs are necessary and that they distort incentives for companies, but if included they should be extended to take account of tax and finance costs.

*as proposed by ENWL

8.2.3 Other common Ofgem proposed uncertainty mechanisms

Outside the mechanisms in the previous table, the uncertainty mechanisms which have already been proposed by Ofgem following engagement with stakeholders. These cover specific targeted areas and are set out in the table below.

We have included these to give a full picture of all the mechanisms to manage uncertainty in ED2, with the items below being mostly areas we are broadly in agreement with Ofgem on in terms of their design and application in the period.

Figure 60: Other common areas for uncertainty mechanisms confirmed by Ofgem for RIIO-ED2

Area	Type of mechanism	Existing or new for ED2 (as proposed by Ofgem)	Our comments
Inflation indexation of RAV and allowed return	Indexation	Existing – revised for ED2	For our views on these critical finance mechanisms please see Annex 28.
Cost of debt indexation	Indexation	Existing – revised for ED2	For our views on these critical finance mechanisms please see Annex 28.
Cost of equity indexation	Indexation	New	For our views on these critical finance mechanisms please see Annex 28.
Real price effects	Indexation	Existing – revised for ED2	Covered by index. See section 6.2.3.
Tax review	Re-opener	New	For our views on these critical finance mechanisms please see Annex 28.
Pensions adjustment	Pass-through	Existing – revised for ED2	For our views on these critical finance mechanisms please see Annex 28.
Enhanced Physical Site security	Baseline allowance and/or re-opener	Existing	Baseline costs included.
Coordinated Adjustment Mechanism (CAM)	Re-opener	Existing	Zero baseline. This provisions for changes of obligation between sectors.
Rail electrification	Re-opener	Existing – revised for ED2	Baseline of £0.1m included to cover costs of Transpennine electrification.

We have not listed the cost pass-through items being proposed by Ofgem in the table above as these are set out in the table below:

Figure 61: The areas of Ofgem confirmed miscellaneous cost pass-through items including our proposals

Area	Type of mechanism	Existing or new for ED2 (as proposed by Ofgem)	Our comments
Ofgem Licence Fee	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.
Business Rates	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.
Transmission Connection Point Charges	Pass-through	Existing	We propose that this is extended to include all transmission connection point charges, whether existing or new.
Smart Meter Communication Licensee Charges	Pass-through	Existing	It is our proposal that it is extended to include all code fees.
Smart Meter Information Technology Costs	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.
Ring Fence Costs	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.
Supplier of Last Resort Costs (SOLR)	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal. Our views on SOLR and special administration are evolving in the light of the current instability in energy retail which is unprecedented.
Eligible Bad Debt Costs	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.
COVID-19 Bad Debt Costs	Pass-through	Existing	We broadly agree with Ofgem proposals and as such offer no comments on the ED2 proposal.

We will continue to work with Ofgem, key stakeholders and the other network operators on both common and bespoke uncertainty mechanisms, as well as cost pass through items to enable our customers' needs to be delivered and to fairly manage the risk of future uncertainty.

8.3 Output mechanisms

Output mechanisms are the means by which our delivery in ED2 can be tracked and monitored. They also set out what will happen if we don't deliver against our commitments. Ofgem has specified a number of different approaches which will operate in ED2, broken down into Licence Obligations (LOs), Price Control Deliverables (PCDs) and Output Delivery Incentives (ODIs).

8.3.1 Licence obligations

Licence obligations (LOs) are one of the RIIO building blocks and are used broadly to set minimum service standards or requirements by which companies (DNOs) should adhere. LOs contain an output or standard that is set out within the licence conditions of a DNO and can be common (i.e. applying to all DNOs) or bespoke (i.e. a single or subset of DNOs). LOs as regulatory mechanisms offer protection to consumers where should a company fail to meet the requirements set out in an LO, Ofgem has the power to take appropriate enforcement action against the company involved.

Our plan has given consideration to common LOs which are likely to apply to our sector for the ED2 period. In many cases our plan is to deliver service beyond those minimum standards as set out in our LOs representing the challenges and input from our enhanced stakeholder engagement. In simple terms as set out within our plan it efficiently delivers the minimum service standards or requirements or our wider appreciation of what could be within our ED2 licence. At this stage not all minimum service standards or requirements are set or agreed by Ofgem, but we have included assumptions of what these will be in our plan.

We are not proposing any bespoke LOs. We have led proactive engagement with Ofgem on ED2 licence developments and will continue to work with them and others on the inclusion of obligations in our licence. We propose that work on our ED2 licence is based on targeted updating, revisions and additions to our current ED1 licence.

8.3.2 Common Price Control Deliverables (PCDs)

These are measured outcomes for programmes and investments that are common across most or all DNOs. In each case, we are required to specify how delivery will be measured and the consequences of non-delivery.

Where any common PCDs are applicable we consider that these should be carefully developed. Proposals for PCDs need to be mindful of the particular needs of customers and wider stakeholders of the electricity distribution sector. We strongly view that PCDs should therefore be used only where required and where it can be demonstrated that these drive value to consumers.

Ofgem has specified three areas where this approach will apply in ED2 and our current view on each is set out in the following table:

Figure 62: Common Ofgem specified PCDs including our proposals

Area	Plan ref	Our plan	Our proposed PCD
Network Asset Risk Metrics (NARMs)	Output 2	Maintain risk at current levels through a targeted investment programme. Estimated cost – £195m	Scaled clawback of allowances based on the proportion of risk improvements not delivered. We are working on a proposal to include both overall and asset type level indicators in this framework.
'Worst-Served' Customers (WSC)	Benefit 17	Deliver sustained improvements for all customers historically qualifying as 'Worst-Served' under the ED2 definition through a programme aimed at 26 specific circuits. Estimated cost – £21m	An improvement of 50% over the whole delivered programme with scaled clawback of allowances for every percentage point we underachieve by. For any circuits where work is not delivered, return of 1/26th of the total allowances.
Cyber resilience	Benefit 21	Deliver a range of projects which will materially improve our cyber resilience capabilities. Estimated cost – £17m	This area is under discussion with Ofgem and the other DNOs, however we propose that delivery is linked to achievement against the Cyber Assessment Framework.

8.3.3 Bespoke Price Control Deliverables

These are PCDs for activities which are unique to an individual DNO. For some particularly bespoke, uncertain and high-cost outcomes, we have given consideration as to whether to apply bespoke Price Control Deliverables (PCDs) as these may be beneficial in these limited circumstances.

We are proposing the four bespoke programmes set out in the table below:

Figure 63: ENWL proposed bespoke PCD areas

Area	Plan ref	Our plan	Our proposed PCD
Smart Street	CVP 1	To roll out the Smart Street programme to 250,000 customers in ED2. Estimated cost – £78m	We have also included Smart Street as one of our Customer Value Propositions (CVPs). We intend to explore with Ofgem the most appropriate outputs framework for this programme.
LineSIGHT	Benefit 26	To roll out the LineSIGHT technology on rural overhead line circuits to improve safety and ability to restore supplies during storm events. Estimated cost – £35m	Our proposals for LineSIGHT are still in development. We propose that this is an input-based PCD based on the number of devices installed and number of circuits protected.
Electricity users in vulnerable circumstances network improvements	Benefit 18	To deliver a programme of work to materially reduce the risk of power cuts in areas with higher relative levels of vulnerability. Estimated cost – £20m	We propose that this is an input-based PCD based on the number of substations receiving reliability enhancements.
Borrowdale transformers	Output 6	To deliver a programme of work to replace small rural transformers in exposed parts of the network. Estimated cost – £4m	We propose that this is an input-based PCD based on the delivery of specified activity.

8.3.4 Our ENWL-led output delivery incentives (ODIs) proposals

As well as bespoke uncertainty mechanisms, LOs and PCDs, Ofgem has also asked us to specify any new and bespoke incentives that we are proposing in our final business plan submission. These are additional to those common mechanisms which Ofgem have included in the regulatory framework as common for all DNOs, such as CSAT and IIS. Additionally, Ofgem is leading development of additional new incentives (ODI-F) for ED2.

8.3.4.1 Our proposal for environment incentive scorecard ODI-F

For transparency we have included our proposal on how an incentive covering an environmental scorecard should work for ED2. The details of this can be found in appendix E of our Environmental Action Plan (EAP) Annex 13.

Currently the proposal from Ofgem is that a common financial ODI (ODI-F) will apply to all DNOs as part of ED2. The details of the incentive and how it would work are yet to be defined and our proposals contained within our final plan aims to support in this development. We will continue to work with Ofgem and other DNOs on an environmental scorecard and how this should apply in ED2 through the Decarbonisation and Environment Working Group (DEWG). This will occur between this final plan submission and draft and final determinations.

8.3.4.2 Our bespoke ODI-F; Dig, fix and go

Following our testing of the proposal on more rapid completion of streetworks (see Benefit 5 for further details), we are proposing a bespoke incentive mechanism (ODI-F) that aims to drive a transformational change to reduce the disruption our emergency street works cause to our customers and stakeholders. This is a proposal formed and led by our customer and stakeholder feedback. Comprehensive information on how we propose that this should work can be found in Annex 7.

We will continue to work with Ofgem and other DNOs on an environmental scorecard and how this should apply in ED2 through the Decarbonisation and Environment Working Group.

In this section

Section 9

Giving customers and stakeholders a stronger voice

Engagement for this plan has been thorough, high quality, robust and transparent using complementary quantitative and qualitative research methods. We have formally triangulated and reported on the results of research as an ongoing exercise throughout our engagement to identify gaps and inform the next stage of engagement giving us richer insight as we developed this plan.

Ofgem defines stakeholders as: “individuals, organisations or communities that are impacted by the activities of the network company. Stakeholder engagement should consider the needs of existing and future consumers”.

While we accept that customers are also stakeholders, they are materially different groups in that customers pay for our service. Other stakeholders, including consumers, may benefit from our service without paying for it. Separating bill payers and non-bill payers is important, particularly in relation to business planning where willingness to pay is a factor.

For clarity we will use the following definitions throughout this plan:

- Stakeholders: individuals, organisations or businesses that are affected by us, that influence our performance or who we have a legal, financial or operational responsibility to
- Customers: individuals, organisations or businesses who pay electricity bills
- Consumers: anyone in our area who uses electricity from our network, including young people and future customers

This business plan has been shaped by conversations with more than 18,000 customers and stakeholders over a two-year period. It is the most extensive and detailed consultation programme we have ever undertaken.

Throughout the whole process, we have worked hard to give participants a genuine opportunity to build, inform and influence our proposals from the ground up, by allowing them to set the agenda and delve into the issues that really matter to them. We've given them access to information and helped them engage too – in some cases even providing devices and training to allow for online engagement during lockdowns due to COVID-19.

The process began in 2018 and continued right up to October 2021 when we held our final deliberative panels, fuel poverty research and stakeholder workshops. As the consultation progressed, we were able to gradually consolidate ideas and proposals – ultimately arriving at a plan that is rooted in the aspirations and priorities of the communities we serve.

Annex 30 gives further details on our engagement strategy and the customer research approach that has resulted in the proposals within our plan. Annex 1 shows our triangulation, and Annex 31 shows our ongoing engagement strategy for ED2.

We have engaged with the following numbers of customers and stakeholders, including 281 unique stakeholder organisations and all 35 of our local authorities, as well as our one combined authority (Greater Manchester Combined Authority) and our two county councils (Cumbria and Lancashire County Councils). We have focused our engagement with those councils with at least 10% of their population in our area to ensure efficient and best value engagement.

Figure 64: Engagement numbers

	Individuals	Interactions
Customer count	15,255	17,213
Political count	637	1,118
Sectoral count	930	1,929
Charities count	180	363
Legal count	64	78
Media count	12	24
Regional count	676	624

9.1 Setting up for success

To get the most out of our engagement we needed people to get on board. We heard from expert partners that a common failing of public consultation campaigns, especially when dealing with complex, multi-faceted issues, is to start with a pre-defined agenda, and start with the point of view of the organisation.

We were keen to avoid this. Before we even started talking about who we are and what we do, we wanted to ask customers and stakeholders "what matters most to you?".

Rather than starting by deciding what questions we want to ask and diving into discussions about us, we started our process asking customers and stakeholders to talk about themselves and their priorities.

In that way we were then able to connect with customers, and shape our questions to fit their perspective, increasing engagement and delivering richer insight.

To ensure we approached the consultation programme with this spirit of openness and inquisitiveness, we carried out some valuable groundwork in 2018 and 2019. All our activity is based on adherence to the AccountAbility stakeholder engagement framework that you can read more about in Annex 30.

9.1.1 Triangulation of ED1 engagement

As well as our outside-in approach we've also made sure we're made the most of all the information we have gathered from previous engagement during ED1.

In 2019, we commissioned an external review and triangulation report of all our engagement work during ED1 up to July 2019, to assess what had worked and what hadn't. A good example of one of the valuable outcomes of this work was a finding that showed our regional workshops had inconsistent representation of stakeholders. In Greater Manchester we had more environmentally-minded stakeholders, whereas Lancashire had more business representatives and Cumbria more utility representatives.

9.2 Our six-stage process

We have worked hard to ensure that our panels are representative as part of our business plan engagement process, and we have also created a quality assurance process for all engagement activity against which all engagement is assessed before the results are acted upon. The assurance ranks engagement giving a score that can be used in triangulation enabling us to compare the quality of engagement that we have heard, allowing us to apply appropriate weight to different engagements.

9.1.2 Early research and insights

In 2018, we spoke to 110 stakeholders to understand their high-level priorities for the ED2 period through our established stakeholder engagement groups and our three advisory panels (CEO panel and our independently chaired sustainability panel and consumer vulnerability panel). This was a development of our regular work with these panels to help us establish a materiality matrix – put simply, a plan showing the things that were most material to our stakeholders.

In summer 2019, we carried out early focus groups with 200 customers across our region, including hard-to-reach customers and customers in vulnerable circumstances.

These sessions were designed to understand what really matters to our customers and how we could make our subsequent engagement more relevant and meaningful to people's everyday lives.

Armed with our early insights into what matters to customers and how they wanted to be engaged, we were able to shape our ED2 consultation programme.

The consultation is being delivered in six phases. We began by canvassing broad opinions on a range of issues related to our customers and stakeholders in phase one, before narrowing the focus and increasing the level of detail with each successive phase.

By the fourth phase, participants could be given or had developed a high level of knowledge, and were participating in sophisticated and nuanced discussions about the fine detail of the proposals.

At the end of each phase, we used a robust triangulation process to analyse feedback and to navigate sensible compromises when there were conflicting opinions or competing priorities. Full detail on our triangulation process is included as Annex 1.

Early focus group sessions were designed to understand what really matters to our customers and how we could make our subsequent engagement more relevant and meaningful to people's everyday lives.

The six stages are as follows:

Phase 1: Customer connection (November 2019 – February 2020)

Aim: Find out who our customers and stakeholders were, and what was important to them to give us high level priorities.

Approach: We took an outside-in approach starting with customers and their lives, to find their high-level priorities, rather than diving straight into questions about the electricity network. To further our understanding of our customers we developed a new customer segmentation model which looked at customers' attitudes, behaviours and engagement preferences.

Who we engaged: 4,577 customers (domestic and business), 98 future customers and 423 stakeholders.

Key methods of engagement: Customer segmentation (qualitative and quantitative research), priorities exercise (qualitative and quantitative), stakeholder advisory panels, industry working groups and political perceptions survey.

What we learned: Broad priority areas of reliability, resilience, safety, keeping bills low, affordability, customer service, supporting vulnerable customers, raising awareness, environmental priorities.

Phase 2: Electricity in my life (March 2020 – May 2020)

Aim: To understand customers' interaction with electricity, including their expectations and changing needs of energy to get a more detailed understanding of their preferences.

Approach: We tested our understanding of customer priorities and learnt more about their experiences and how best to engage with them. We adopted a topic-led approach to engage stakeholders with purpose. A prioritisation exercise helped us decide how to engage stakeholders on the most material issues to them.

Who we engaged: 773 customers (domestic) and 61 stakeholders.

Key methods of engagement: Established our online community, industry working groups and stakeholder advisory panels, one-to-one engagement.

What we learned: Finessing of key priority areas to reliability, resilience, safety, customer service, supporting vulnerable customers, helping the North West to Net Zero, reducing our own environmental impact.

Phase 3: Our plan for the future (June 2020 – September 2020)

Aim: To develop specific proposals and to explore real trade-offs to find out what service levels customers were willing to pay for.

Approach: We explored the key issues that made each priority area important and tested a series of ideas in each area to explore which proposals had greatest resonance with customers and stakeholders and the relative priorities between them.

Who we engaged: 4,155 customers (domestic and business), 86 future customers and 182 stakeholders.

Key methods of engagement: Two phases of willingness to pay research (a 'maximum difference' phase using trade-offs to identify customers' most and least supported priorities, and a full willingness to pay study), a deliberative customer panel, online community, 'Powering Up the North' stakeholder event, one-to-one stakeholder meetings, stakeholder surveys, industry working groups, stakeholder advisory panels and regional stakeholder workshops. Increased one-to-one dialogue with key stakeholder groups.

What we learned: We developed 41 business plan proposals which reflected our customer priorities and their willingness to pay for the proposed service levels in the following three areas:

Customers: Customers want to interact with us in a variety of ways and we must be passionate about delivering excellent customer service whether delivering new connections, responding to power cuts or engaging on anything else. We should be highly focused on the needs of all of our customers, but particularly those in vulnerable situations to ensure that nobody is left behind by the carbon transition.

Network: We should continue to deliver industry-leading levels of reliability and strive to improve it further, particularly for those who receive a significantly worse service than average or are highly dependent on electricity. We will ensure that our network is designed and operated to cope with extreme events such as storms which are more likely in the future. We should continue to focus on the safety of the public and our staff.

Environment: We should work hard to reduce the effect we have on the environment, both in terms of our carbon emissions and the other impacts we have. We have a central role in facilitating the national drive to a Net Zero economy and enabling our regional stakeholders to meet their aspirations of earlier decarbonisation.

Phase 4: Sweating the detail (October 2020 – January 2021)

Aim: Testing support for the overall 'package' i.e. the plan in its entirety and the support for each of the most substantive components at a thematic and detailed performance level.

Approach: We analysed what was driving overall support for the plan, which promises resonated with customers and stakeholders, whether our propositions were perceived as relevant and if performance targets were perceived as credible and ambitious. We devised an approach to understand how customers perceived us in terms of trust and value for money having seen the plan and the bill impact.

Who we engaged: 2,744 customers (domestic and business) 54 future customers and 1,041 stakeholders.

Key methods of engagement: Acceptability testing, Plugged In Public Panel (deliberative customer panel), online community, 'Powering Up the North' regional events, one-to-one stakeholder meetings, industry working groups and stakeholder advisory panels.

What we learned: The acceptability of the total business plan as a package gained a very high score, giving us confidence that we could move forward with the majority of the propositions tested. Furthermore, the package of measures in each of the seven areas was scored above 80% by domestic customers, business customers and stakeholders, increasing our confidence with the balance both across the proposition areas and within each proposition area. Affordable bills have always been a priority for our customers, but they told us they are willing to pay a bit more for an ambitious plan that meets their needs.

Phase 5: Closing the loop (January 2021 – June 2021)

Aim: Closing the loop was our chance to play back the results of our acceptability testing to customers and stakeholders. This also allowed us to delve into more detail on specific topics to make sure we get the balance right for our July submission to Ofgem. It was in this phase that we also published our early draft business plan for consultation.

Approach: This phase was about assurance and checking back in with our customers and stakeholders. After our acceptability testing of our 41 propositions, we consulted on our key draft strategies, and then published an early draft plan for consultation ahead of submitting this draft plan to Ofgem in July. This allowed customers and stakeholders plenty of opportunity to engage with our transparent process before the first formal submission of our plan.

Taking our acceptability testing results we carried out another phase of triangulation of all our engagement evidence to decide which would make it into our final plan. This triangulation identified specific proposals where we wanted to gain more insight from customers and stakeholders, or test the ambition.

Some specific proposals highlighted for additional feedback in our early draft plan had scored lower than our 80% benchmark with bill-paying customers in acceptability testing, however in cases where we have had overwhelming stakeholder support we wanted to check-in and close the loop for transparency to ensure understanding of our proposals and the reasons for them. Other proposals we wanted to retest scored well above our 80% target in acceptability testing but we wanted to review as part of our early draft plan consultation to make sure that customer and stakeholders thought we were being ambitious enough. We made a few significant changes to our plan as a result of this phase, increasing ambition on five proposals.

Who we engaged: 2,460 customers, (domestic and business) 20 future customers and 521 stakeholders.

Key methods of engagement: Plugged In Public Panel (deliberative customer panel), advisory panels, political and business events, key strategies consultation, full draft business plan consultation.

What we learned: While respondents were generally happy with our proposals and overall plan, we did learn that there was appetite for increased ambition in some key areas. For more detail see Annex 1 on triangulation.

Phase 6: Refine and submit (July 2021 – December 2021)

Aim: We aimed for transparency and published the most detail of any DNO in July alongside our submission to Ofgem with only minor parts of our full plan redacted for security or commercial reasons. The reason we did this was to give customers and stakeholders a full and clear view of the plan to enable them to respond appropriately from a fully informed perspective.

Approach: We received feedback from a variety of key sources including Ofgem, Ofgem's Consumer Challenge Group, BEIS, our own Customer Engagement Group and Citizens Advice as well as our own stakeholder groups including our CEO panel, and independently-chaired Sustainability Advisory Panel and Consumer Vulnerability Advisory Panel. This valuable feedback has led to key changes since draft. We then took this feedback back to customers via our online community, and deliberative panel to check understanding and ensure all views were taken on board before finessing and finalising our plans.

Who we engaged: 288 customers (domestic and business) and 510 stakeholders.

Key methods of engagement: Deliberative panel (x2), stakeholder advisory panels, political and business events, regional workshops (x3), fuel poverty research, bespoke DSO metrics research.

What we learned: We learned of the desire of stakeholders for us to give clarity to our overall vision for the business plan, and for us to be clearer on our commitment to the Net Zero transition. We also heard that if we could deliver the same plan for less that we should, but that customers and stakeholders really did not want us to lose any scope from the plan. We believe that we have been able to do that through efficiency, targeted use of uncertainty mechanisms and better clarity around our customer and stakeholder driven benefits which we have now separated from the compliance or engineering-driven outputs in the plan.

9.3 Our engagement methods

Throughout our ED2 consultation programme, we used a wide range of engagement methods to suit all customers and stakeholders – from time-poor participants juggling busy lives, to those who were able to give up more time and engage at a deeper level. The range of data gives us rich information with which to make decisions and each piece of data goes through our quality assurance process before we decide what, if any, weight it has in our decision-making.

We have included more detail on our methodology for the research listed below (with more detail in Annex 30) and include full findings linked back to specific proposals in Annex 1.

9.3.1 Large scale quantitative research

All of our key quantitative research started with initial qualitative work with focus groups. These groups enabled us to frame the quantitative part of the research in the most effective way so that we knew we could get the most out of it. Ensuring that we understood consumers' views and the right level of background information to enable informed engagement was key to the success of our larger quantitative research.

9.3.1.1 Segmentation

We carried out a review of our stakeholder identification process and also invested in robust research to segment our customers and consumers in the North West. This segmentation was based on attitudes and behaviours and carried out by Accent Market Research, specialists in the field.

The research ensured that not only could we check that any feedback collected was representative, but that we could then analyse results by segments to ensure a fair representation of our region's views.

The work developed a set of 'golden questions', that we were able to ask of any customers taking part in research throughout our engagement programme, enabling us to identify groups and themes that we could then address more specifically.

The work also enabled us to tailor our communications and materials to different groups to make them more accessible encouraging all groups to engage with us to share their views. For more information on our segments, see Annex 30.

Figure 65: How the plan delivers for our different segments

Specific segment	Needs	How the plan delivers
Broad segment: Domestic consumers (including customers)		
Busy busy busy	Ease of customer service, need things to just work, including power.	9/10 customer service, and reducing number of power cuts and time without power by 20%. Other actions to reduce disruption include: minimising disruption from emergency roadworks; self-service channels.
Selfless jugglers	Environmentally passionate and want to see investment in communities.	Support for the transition to Net Zero. Plans to improve our management of our environmental impact, including planting 10,000 trees a year. Investing in improving 100 substation sites through biodiversity schemes. Also reducing our business carbon footprint and providing advice for others to do the same.
Time for myself	Little interest in engagement, but demand excellent customer service and value.	9/10 customer service and a package of improvements for lower price. Our collaborations with other utilities will also enable better efficiency and value for money.
Time to care	Strong focus on community and charity work but happy for businesses to make a profit too.	Corporate responsibility commitments and plans to carry out more local engagement and develop new customer panels. Our investment in referral networks will enable us to signpost customers in vulnerable circumstances to the right support.
Managing day to day	Finances are all important, keeping on top of bills is a constant struggle and looking for support. Safety is also this group's second priority.	Focus on keeping bills low, while also rolling out Smart Street to 250k properties to reduce bills further. Additional £2m a year support to help those in fuel poverty and a doubling of our investment in referral networks. Vulnerability Fund to help not leave anyone behind in the Net Zero transition. Safety promotion and education as well as our focus on promoting energy efficiency and referral networks and investing in safety in high-rise buildings.
Community-minded	Community-conscious and expect businesses to look after customers and the environment. Not so digitally engaged as other groups.	Outputs to support those in fuel poverty and also investment to have no worst-served customers. Other environmental improvements such as community energy fund also available. Increased telephony support for those who cannot easily self-serve.
Living for today	Little interest in the community or the environment but self-focused.	Reliability improvements and improved self-service available for customer service. Safety campaigns also to be targeted at younger age groups. Keeping bills low.
Broad segment: Business customers		
Micro-businesses	Similar to domestic customers but reliability even more critical.	Focus on improving reliability and resilience. Reducing the disruption caused by emergency roadworks will also be key as this was the top priority for this group.
Small and medium sized enterprises	Interested in energy efficiency, but also reliability and resilience of the network to minimise disruption.	Reliability and resilience outputs as well as business PSR to support them when they need us. Decarbonisation advice available. Bill affordability very high up in original Priorities Research recognising the impact of COVID-19 on this segment in particular.

Specific segment	Needs	How the plan delivers
Large businesses	As other businesses but with more of an eye on Net Zero and environmental aspects. Looking to see how they can do their bit and also save money.	Decarbonisation advice and support, as well as clear strategies for competition in connections, and supporting electric vehicles.
Large energy users	Focus on energy efficiency and power being available at all times.	Reliability and resilience, and keeping bills low. Engagement on DSO activities to provide good opportunities. Emphasis on maintaining network health (to prevent network faults).
Broad segment: Stakeholders		
Political, regulatory and public sector	Real focus on Net Zero and community engagement. Interest in reducing disruption caused by streetworks as well as long-term planning.	Leading the North West to Net Zero and outputs to support communities. Specific output on reducing time for emergency streetworks to be completed. Public sector organisations rated enhanced support for community energy projects much more highly in willingness to pay research. Helping customers embrace low carbon technologies by making strategic investment in the right place at the right time.
Sectoral and supply chain stakeholders	Want to be updated on developments and opportunities to work with us, particularly regarding Net Zero. Interested in success of the business and innovations.	Transparent approach to engagement and working efficiently with supply chain. Strong focus on Net Zero and diversity and inclusion. DSO proposals to provide potential opportunities around flexibility in particular. Greater industry collaboration and transparency on our procurement requirements.
Charities, NGOs and lobbying organisations	Focus on supporting electricity users in vulnerable circumstances as well as environmental targets and involving communities in decision-making and service planning.	Outputs in electricity users in vulnerable circumstances strategy and environmental action plan showing lots of ambition in these key areas. Also plans to continue extensive engagement throughout ED2. Broadening our social role regarding fuel poverty support and working more closely with other utilities.
Legal and financial stakeholders	Interest in business performance and returns as well as ensuring compliance.	Focus on financeability of the plan and compliance with various standards set by multiple regulators.
Media and advisory organisations	Looking to be kept well informed of developments across a range of topics, and will hold business to account.	Transparency and engagement are key to how we will continue operating the business, providing self-service channels to access information and engaging with customers and stakeholders on a variety of topics throughout ED2.
Regional social, economic and environment stakeholders	Net Zero and environmental improvements are a focus for this group, but also levelling up and fairness between groups, such as those in vulnerable circumstances.	Leading the North West to Net Zero proposals and focus on improving our direct environmental impact are key to delivering for this group, but also helping the region level up in terms of having no worst-served customers, and supporting those in vulnerable circumstances. Fuel poverty commitment heavily influenced by strong stakeholder support, as was Smart Street and community energy fund.

9.3.1.2 Willingness to pay

To explore the customer and stakeholder-defined priority areas further and in more detail we split our willingness to pay research into two phases. The first took the form of a maximum difference survey where 24 different attributes, developed based on feedback so far, were tested across a sample of 354 customers (domestic and business) customers as part of our 'Electricity in my life' phase in summer 2020.

To identify which proposals we should test (out of a growing list of more than 80 possibilities aimed at meeting customers' and stakeholders' emerging needs) we applied the following criteria:

1. Would the proposal result in a material impact on bills?
2. Was the proposal a new idea that we hadn't yet tested elsewhere?
3. Did we need to test the scale of ambition?
4. Were there strong stakeholder views we needed to cross-check with customers?

The results of the maximum difference survey helped identify the initiatives of highest priority which were subject to our second more detailed willingness to pay survey. This concluded in September 2020 and identified the value that customers were willing to put on a range of options for 12 key attributes being tested in significantly more detail.

9.3.1.3 Acceptability testing

We triangulated the results of our willingness to pay research alongside other qualitative engagement, including our deliberative panel, online community, one-to-ones and stakeholder advisory panels, as well as third-party research. This helped us identify and refine our proposals to 41 that we wanted to test as a whole package with customers at the agreed price from the willingness to pay research of +£9.80.

Rather than re-run a second version of willingness to pay research and in consultation with our expert partners Accent Research, we decided to run acceptability testing on the package and individual proposals.

The testing, with both domestic and business customers as well as stakeholders, showed an 83% overall acceptance of our plans.

9.3.2 Qualitative engagement

9.3.2.1 Deliberative Plugged In Public Panel

This panel of 40 customers was selected using our segmentation model to represent the diversity of our region and facilitated by Involve, the UK's leading public participation charity and the organisation behind the Climate Assembly UK.

We convened the group for phases three, four, five and six of the consultation programme, with their final meetings in October 2021 to respond to feedback on our draft plan and give us input to our final plan.

The panel took part in detailed examinations of issues, willingness to pay research and acceptability testing of all areas of the business plan.

The panel met online for 10 Saturdays between July 2020 and October 2021. While some members have been at every session, we did top-up recruitment in March to keep the numbers around 40, accounting for some drop-offs throughout the process.

In total we have spent 40 hours with the panel engaging with us on a wide range of topics. The influence they have had on our plan has been significant.

Figure 66: Screenshot from one of our deliberative Plugged In Public Panel sessions

9.3.2.2 Online community

A mix of qualitative and quantitative engagement, our online community brought together more than 900 customers to discuss key parts of our plan. Over the course of the past year we had more than 8,000 comments and more than 49,000 reactions (likes and dislikes) from customers to those comments showing an active community genuinely helping us shape our proposals.

The format of the community was useful as it allowed us to both run polls as well as educate people through videos and information and encouraged debate among customers. One of our most popular discussions was on bills which received more than 180 comments.

We incentivised customers to join and also ran a points leader board to reward engagement. In some instances this resulted in customers trying to game the system and comment on every post with little value added, but these were quality-checked and discounted to encourage quality discussion. We also awarded spot prizes for the most thoughtful posts and comments to reward people for their time and effort.

We created a summary of things the community had influenced as part of our 'Closing the loop' phase of engagement, which you can see a sample of below:

Figure 67: Feedback shared with our online community as part of our 'Closing the loop' phase

Plugging in: you said we did
Power cut customer service

Plugging In
to your community

You told us that a high level of customer service during an unplanned power cut included up-to-date information on when your electricity would come on, prioritising and creating a support for a wide range of customers in vulnerable circumstances and to offering interactive self-serve channels.

We currently offer a Priority Services Register which provides a free service to customers who need extra help during a power cut. In a poll asking you what our target membership should be for the register, 75% of members told us that we should increase the membership of our Priority Services Register to 80% of those eligible for registration.

In our business plan we are proposing:

- To make it easier for customers to contact us by developing self-serve channels whilst maintaining non-digital ways of contacting us, for example, having more people to answer phones.
- To continue to develop our Priority Service Register and the services we offer to support electricity users in vulnerable circumstances during power cuts.
- To increase the membership of our Priority Services Register to 60% of customers who are eligible for registration, with a stretching target of 80%.

Reliable network

The lockdown has meant for many of us an increase in our electricity usage and one community member posed their own question to other members, *"Are you using more electricity during the lockdown?"*. 72 members responded, of which many said that they felt they were using much more electricity during lockdown. This was supported by some members commenting that delivering a reliable network is more important now than previously thought. You were asked if the current situation with COVID-19 had made you think more about how much you rely on electricity. 68% of 139 members participating responded to the poll with an affirmative "yes".

In our business plan we are proposing:

- To replace and refurbish our equipment before it fails and causes more power cuts.
- To use new technology to reduce the number of power cuts and the average time customers are without power by 20%.

Net Zero

64% of you have never heard the term 'Net Zero'. Many of you felt that we could raise awareness of Net Zero and low carbon technologies. However, the technology such as electric vehicles is perceived to be unaffordable at current prices and is likely to continue to price many customers out of the market meaning they are at significant risk of being left behind.

In our business plan we are proposing:

- To improve our advice and guidance to help our customers reduce their energy consumption and support customers in adopting low carbon technologies.
- To introduce a £250,000 Vulnerability Fund to remove the barriers that prevent the take-up of low carbon technologies such as electric vehicles so that no customer gets left behind. Barriers to low carbon technologies include their cost and the need for greater education and support to understand them. We will also work with our partners on how we can overcome these barriers.

9.3.2.3 Engaging with hard-to-reach groups including future customers

For the purposes of our engagement, we defined hard-to-reach customers as people who our business impacts in some way, but who rarely, if ever, engage with us.

This lack of engagement could be the result of limited awareness or appetite, or a belief that their participation will not make a difference.

To reach customers with whom we have historically had little or no dialogue, we:

- Used segmentation to identify hard-to-reach customers to ensure they were included in our research.
- Provided devices and bespoke training to help some members of our deliberative customer panel so that they were able to engage effectively.
- Created online surveys for our business and political stakeholders to complete who are often time poor rather than relying on formal meetings. We did also however provide tailored one-to-one sessions where these were requested.
- In depth one-to-one interviews with businesses as part of our willingness to pay research.
- Drop-in sessions for MPs and their staff to get up to speed with our engagement and plans to make best use of their time to enable them to contribute.
- Created an online community to allow hard-to-reach and seldom-heard customers to have their say through a new channel.

One particular group that we focused on in our planning was future customers. This is because young people today will be paying for our service through their energy bills by the end of ED2 in 2028. A 15-year-old who we spoke to in 2020 will potentially be paying energy bills when the price control starts in 2023 and the investments we make will affect them for longer that it would for older customers.

Rather than create our own youth panel, our research – including discussions with national youth charity UK Youth – led us to establish a new partnership with Youth Focus North West in 2019.

We wanted to find the best way to reflect youth voices – our future customers' voices – in our plans and were advised that tapping into existing structures and groups was the best approach, giving additional support to these groups and ensuring a more rounded discussion, rather than assembling a topic-specific bespoke group.

Youth Focus North West hosts a regional youth forum called Youthforia which is made up of representatives from 23 local authorities' youth councils and members of the UK's Youth Parliament.

Through our partnership we attended five Youthforia events where we engaged with more than 100 young people on occasions on our ED2 business plan priorities.

We also organised three sub-regional focus groups with young people to gain insight into the opportunities and challenges faced in different parts of our region.

Our acceptability testing also included a number of people who were not yet customers but were consumers, giving us another way of reaching this group of future customers.

9.3.2.4 Stakeholder advisory panels

We have conducted stakeholder engagement since the business formed in 2007. We added significant rigour via a new strategy based on the AA1000 Stakeholder Engagement Standard (SES) and AA1000 AccountAbility Principles (AP) in 2012 and developed our first formal internal and external stakeholder panels.

Throughout ED1 our stakeholder engagement strategy has been continuously evolving and improving, based on our strategic goals at the heart of our business plan: reliability; affordability; sustainability; and excellent customer services ensuring that we cater for the needs of vulnerable customers.

We developed director-led stakeholder advisory panels aligned to these business plan objectives which provided scrutiny of our performance and valuable expert guidance to our leadership team and strategic decision-making. These panels initially met three times a year supplemented by an annual open stakeholder workshop where we discussed material issues, our business plan performance and any changes and enhancements to our commitments.

Following stakeholder feedback in 2018 we revised our panel approach and combined our panels, to avoid duplication, retaining the sustainability panel and consumer vulnerability panels and inviting all panel members to join the appropriate panel going forward. In May 2019 we further strengthened our approach by appointing independent stakeholder representatives to chair the stakeholder advisory panels and with them reviewed membership to ensure inclusivity.

We recognise the value that this has added to the process and the independent chair positions will be retained in ED2. As part of this review we also split our annual open stakeholder workshop into three regional workshops reflecting feedback that each region and the material issues encountered were very different across the geography of the North West. We have held these regional events, hosted by our executive team, every year since.

To enable even greater senior level buy-in and direct input to our strategic business planning, in March 2019 we held our first Chief Executive Panel and invited senior regional business leaders and stakeholders to join members of our executive team twice a year.

Our advisory panels have provided a valuable framework to our stakeholder engagement for ED2 and have enthusiastically embraced the additional requirements for them to develop, review and enhance our priorities and strategies.

They have challenged us robustly to consider alternative approaches and set challenging targets in addition to their existing remit of challenging and advising on our ED1 activities. In 2020 our sustainability and consumer vulnerability panels often met monthly, creating additional sub-groups as required. Over the course of our engagement we held 39 advisory panel meetings, as well as 12 regional stakeholder workshops.

9.3.2.5 Meetings with key stakeholders, including local authorities

Our early prioritisation exercise helped us decide how to engage stakeholders on the most material issues to them. We adopted a topic-led approach to engage stakeholders with purpose.

We have held 188 one-to-one meetings with key stakeholders across our priority groups and our regular audit of stakeholder engagement shows that we have covered a broad and representative range of stakeholder groups. We undertook a series of one-to-one meetings with individual stakeholders who had high levels of interest in our business plan, such as MPs and local authorities.

We have also increased our engagement with business groups, including Local Enterprise Partnerships, Chambers of Commerce and the Federation of Small Businesses through a range of methods including one-to-ones, stakeholder advisory panels, our CEO advisory panel and offering speaking opportunities at our events to hear their views.

We also developed relationships with the Greater Manchester All Party Parliamentary Group of MPs in our region and have presented to them and discussed with them their views on our plans.

Across our wider team, we continued our engagement with connections customers and stakeholder, community and local energy stakeholders and others across the business, providing information to allow our teams to engage with their own stakeholders on our plans too.

Our engagement included a step change in our relationship with local authorities. We have closely engaged with Greater Manchester Combined Authority for many years including our CEO sitting on the authority's infrastructure board.

We used our business planning process to engage more strategically with both Lancashire and Cumbria County Councils, attending their scrutiny committees as well as meeting their CEOs and developing long-lasting and mutually beneficial strategic relationships.

Over a number of years we have developed a robust strategic engagement programme with Greater Manchester Combined Authority (GMCA) reinforced and strengthened by collaboration with their clear decarbonisation ambitions and ours to lead the North West to Net Zero. This has enhanced existing operational relationships (highways, strategic projects etc).

In 2018 we recognised that this strategic approach to engagement at a county-wide level should be replicated and coordinated in Lancashire and also Cumbria. Our approach has been topic-led focusing on – decarbonisation, strategic development projects, vulnerable customers and the ED2 business plan.

All three regions were invited to participate in our advisory panels (see below) and representatives from Greater Manchester Combined Authority and Lancashire and Cumbria County Councils have all attended our regional advisory workshops. Where they were unable to participate around strategic topics or on strategic working groups due to resource or other issues, we arranged bespoke and targeted bilateral meetings with the relevant executive directors at the county councils or their reports.

Figure 68: Local authority engagement

	Greater Manchester	Lancashire	Cumbria
CEO Panel	GMCA Environment Director Manchester City Council Development Director	Lancashire County Council Growth Director	Cumbria Economy Director
Sustainability Panel	GMCA Director	Lancashire County Council Strategic Development Manager Salford City Council Principal Officer	
Customer Panel	Bolton Council Principal Strategy Officer	Lancashire County Council Senior Public Health Practitioner Blackpool Council Employer Relationship Manager	Carlisle City Council Health and Wellbeing Programme Manager Eden District Council Health and Wellbeing Officer
Other strategic activities	• Green Summit sponsorship • GM Green City Region Partnership • GM Strategic Infrastructure Board • Directors of Place meetings • GM Energy Innovation Challenge Group • Decarbonisation Pathways • Powering up GM	• External Scrutiny Committee • Quarterly bilateral meetings • Samlesbury Enterprise Development • Decarbonisation Pathways • Powering up Lancashire	• Bilateral meetings • Cumbria Chief Executive meeting • Cumbria Climate Change Working Group • Cumbria Clean Energy Strategy • Charge my Street – EV initiative – CAfS • Decarbonisation Pathways • Powering up Cumbria

Lancashire County Council

Lancashire County Council has been an active participant on our all advisory panels since 2018 and officers and councillors have also participated at our Annual Regional Advisory Workshops and our political and business-focused Powering up the North events.

The strategic relationship with Lancashire County Council started in March 2019 with an initial presentation to the External Scrutiny Committee on regional investment and decarbonisation. Following that initial session, the Committee recommended that Lancashire County Council create a Green Summit (similar to GMCA) and investigate progress on the Environment Plan initially drafted with the LEP but on hold. This was reported by the local media.

Further meetings took place with the Committee around working with the resilience forum in September 2019 and support for customers in vulnerable circumstances in October 2019.

Additionally, discussions were taking place with the Economic Development Team around the strategic development site at Samlesbury and partnerships were developed to support customers in vulnerable circumstances through the Advisory Panel and Empowering our Communities Fund.

Throughout 2020 and 2021, Lancashire County Council continued to play an increasingly active part in our Advisory Panels, has been involved in the Decarbonisation Pathways, and we continue to work closely together around the Samlesbury Enterprise Zone and other economic development opportunities. Steven Young, Executive Director of growth, environment, transport and community services, contributed to our Powering up the North Lancashire event, speaking on behalf of the Council.

The decarbonisation pathways were also presented to the external Scrutiny Committee in November 2020 and they reiterated their support for a Green summit and put forward the following motion:

"Resolved: That relevant officers be requested to attend a future scheduled meeting of the External Scrutiny Committee to present on the Greater Lancashire Plan and progress made towards a green summit for Lancashire as previously agreed with the Cabinet Member for Economic Development, Environment and Planning to bring together all councils, public sector, the Lancashire Enterprise Partnership and the private sector into a cohesive, planned effort."

The engagement is now coordinated through a quarterly strategic bilateral meeting with the directorate of growth, environment, transport and community services and topics for discussion include the Lancashire County Council Infrastructure Plan, Lancashire County Council Environment Plan as well as the Electricity North West Business Plan.

Cumbria County Council

Relationships across Cumbria initially developed on a subject matter basis including with the National Park around operational activity and our undergrounding for visual amenity programme, community and local energy groups and developments on the energy coast particularly in relation to the future of nuclear generation and associated network connection.

In 2019 we started to reach out to the County Council to establish a more coordinated strategic relationship. In January 2020 we were invited to participate along with the Council in the Energy Strategy development with Cumbria LEP. In February 2020 Angela Jones, Executive Director of Economy and Infrastructure joined our CEO Advisory Panel and we held our first face-to-face strategic bilateral coordination meeting with her deputy Stephen Hall and the directorate of economy and environment.

9.4 Why you can trust our robust and high-quality engagement

With the onset of COVID-19 our meetings were paused (at the request of the County Council) however other meetings with the Council and LEP around the Cumbria Clean Energy Strategy continued around the region's ambitious plans to develop small modular nuclear reactors and network capacity. Our CEO, Peter Emery, has also attended the Cumbria Chief Executives' meeting involving District Councils, Lake District National Park Authority, NHS leaders and others, and he has since held meetings with their Chief Executive. Angela Jones also contributed to our Powering up the North Cumbria event, speaking on behalf of the Council.

In October 2020, the coordinated strategic bilateral meetings resumed with a further three meetings taking place before the end of 2020. Topics for discussion with Cumbria County Council include the Cumbria Transport and Infrastructure Plan, including electric vehicle rollout and generation, strategic developments and network capacity and investment, carbon management strategy and our business plan.

9.3.2.6 Local and regional summits

We have hosted eight summits to date, bringing together political and business leaders, including Ofgem. We followed up our regionwide Powering Up the North event with local events in Cumbria, Lancashire and Greater Manchester in 2020, focusing on the region's energy needs.

We continued this engagement with our local Powering Up Recovery series in 2021 and a final regionwide event in September 2021. In total we engaged with almost 400 people through these events, gaining key insight on key stakeholders' views including the desired pace of change towards Net Zero.

Speakers included: MPs, Local Enterprise Partnership CEOs, council leaders, Ofgem, universities, the Federation of Small Businesses, Lords, Cadent Gas, airport and transport representatives, National Park Authorities and many more leading to a wide and varied debate and insight.

9.4.1 Our independent Customer Engagement Group

We were one of the first distribution network operators to appoint a chair and set up our new Customer Engagement Group (CEG), to challenge us on our engagement and plans. We fully embraced this new Ofgem requirement and worked hard to appoint a group of individual experts to give robust challenge to our plan.

Our chair, Jeff Halliwell, was appointed in January 2019 following the use of an external executive search agency in recognition of the importance of appointing a strong chair. Jeff is a highly experienced consumer heavyweight, having held a number of non-executive positions including chair of Heathrow Airport's Consumer Challenge Board, chair of Anglian Water's Customer Engagement Forum, and chair of Transport Focus, the statutory independent consumer watchdog for Britain's rail, bus, coach and tram passengers, and users of the major road network.

Jeff then built up the rest of the CEG membership working independently of Electricity North West to achieve the right balance of skills and experience to provide the quality challenges to make our plan as robust as possible.

We have met with the CEG for two days every month since May 2019, giving us lots of time to establish effective working practices. (From April 2020 our meetings have all been virtual due to the pandemic.) The CEG has systematically challenged us on a huge variety of elements of our plan, with particular scrutiny on our engagement process offering genuine challenge.

The CEG has been fully immersed in our business, spending time with our Board, CEO, engineers, office staff and getting out around the network on site visits (pre-COVID-19 restrictions). We have discussed our engagement programme and updates with the CEG as a standing monthly agenda item.

The CEG spent at least 500 hours scrutinising our plans, including more than 150 hours spent directly with Electricity North West teams.

In addition members attended a number of our engagement sessions as observers so they could see how we engaged and the feedback we received.

There is more information on the CEG's role and our engagement with them in Annex 30.

9.4.2 Consumer Challenge Group

We have actively engaged with Ofgem's independent Consumer Challenge Group via senior leaders in our business including our Chief Executive Officer, Chief Financial Officer, Regulation and Communications Director, Customer Director, Engineering and Technical Director and Head of Regulation.

We have worked hard to address the issues they raised at draft plan stage ahead of this final submission. More information on our engagement with our Customer Engagement Group and the Consumer Challenge Group is in Annex 30.

9.4.3 Assuring the plan

As part of our annual assurance process, we have had our engagement activity assured by AccountAbility, a stakeholder engagement consultancy that has developed a detailed internationally-recognised best-practice standard for stakeholder engagement. In 2021 we undertook a full engagement health check with AccountAbility which (on a scale of Foundational, Evolving, Committed, Accomplished and Advanced) rated us as 'Accomplished'.

In March 2020 we appointed one of the 'big four' accountancy firms, Price Waterhouse Coopers, to undertake a critical friend review of our project plan and to hold one-to-one meetings and workshops with our project team. They reviewed and assessed our project against the 12 elements of project management excellence and provided recommendations.

Areas they identified as evidence of 'good practice' included our senior and executive (particularly CEO) involvement and commitment to the project, our hybrid approach in combining elements of both traditional project management methodologies with agile methods, our approach to stakeholder engagement, our focus on being 'engagement-led' at each stage of business plan development, and our close work with our finance colleagues at all stages of the project.

They recommended that we further developed our proposed assurance processes using a risk-based model, considering external assurance for highest risk elements. They also highlighted that we should monitor the COVID-19 pandemic as a risk and liaise with stakeholder partners to develop alternative methods of communication and engagement. Finally, they made a range of practical suggestions on how we organise ourselves to complete the major data exercise that a price control submission involves. We accepted all their recommendations and adapted our planned programme and working practices accordingly to successfully develop our plan.

We have also worked with:

- specialist technical consultants to assure the technical and engineering aspects of the plan;
- regulatory specialists to advise our Board audit sub-committee in carrying out their scrutiny role; and
- our own risk and assurance team who carried out a review of our process including how we engage customers and stakeholders, how we work with the CEG and how we incorporate feedback into our plans.

9.5 How feedback shaped the plan

This has enabled us to ensure that our plan has been extensively reviewed and assured prior to its completion. Each element has been separately reviewed and checked internally using well-established internal processes that are compliant with Ofgem's requirements for data submissions. Further details of our overall assurance process can be found at Annex 32 and the report from our technical consultants is included as Annex 33.

The CEG has been reviewing and challenging the plan through its development, a process that has used an extensive Challenge Log. In addition, our Board are undertaking their own reviews, primarily through the Board Audit Committee, who have also been assisted in their task by independent external experts.

We seek to be a leading utility network operator and constantly compare ourselves to other companies both in the UK and beyond. As part of this approach, we seek to ensure we meet internationally recognised best practice by holding certifications against key recognised international standards for our environmental (ISO14001), safety (ISO45001), energy management (ISO50001) and asset management (ISO55001) standards and practices. This gives us and our customers confidence that we are managing our network and business appropriately.

Our process began with broad discussions about customers' needs, the changing nature of our business, the challenges and opportunities in phase one, through to detailed examination of proposals in phase four. Phase five, Closing the Loop, allowed us to feed back to customers and stakeholders after our acceptability research to double check that we had interpreted views correctly and gave another opportunity for input and challenge. Phase six focused on addressing feedback on our draft plan.

As the consultation progressed, participants' knowledge has increased and the level of engagement has intensified. By phases 3 and 4, participants were able to provide very sophisticated and nuanced analysis and feedback.

The result is a plan that has been heavily influenced by our customers and stakeholders at every step of the way.

The CEG has been reviewing and challenging the plan through its development, a process that has used an extensive Challenge Log.

9.5.1 Balancing trade-offs

Our extensive engagement has brought with it difficult decisions to be made, with trade-offs between stakeholders' views on competing priorities.

The expectation that we will deliver outcomes over and above those achieved during ED1, while ensuring energy bills are affordable for all, has become a key trade-off in our plan. We have tackled this head on by testing our proposals with customers and wider stakeholders iteratively, each with varying degrees of ambition and investment implications.

On average households told us that they were willing to pay an additional £28 towards their most valued service improvements. In seeking an optimal service package, we have been very conscious that the cost of improvements will partly fall on customers in vulnerable circumstances or fuel poverty.

While we heard a call for stretching improvement, a significant minority of households reported sometimes struggling to pay their bills. Future customers also revealed a social concern about the continued impact of COVID-19 making it increasingly difficult for customers in poverty to meet their financial obligations. In response we set ourselves a higher hurdle of 80% acceptability to be passed to justify investment, rather than simply the majority of bill payers being in favour.

The higher hurdle we set created customer willingness to pay an additional £9.80 per household. In further testing 83% of customers and wider stakeholders found our proposals priced at this level acceptable. The reasons provided included improved service levels, inclusion of innovative ideas and sufficient futureproofing. To complete our trade-off, we resolved to deliver the plan our customers and wider stakeholders wanted for less money, further enhancing the value for money it will deliver to them through innovation and efficiencies, including sound management in reducing our pensions deficit.

9.5.2 Triangulation of insight

To help us produce an overall plan that seeks to meet the needs and expectations of customers and wider stakeholders of the North West in a fair and equitable manner, we introduced a formal triangulation process.

We used this process to iteratively evaluate customer and stakeholder feedback, operational data and third-party insights, and weighted them carefully and triaged an appropriate way forwards.

We have developed and used 150 key insights from our robust triangulation process to shape our ongoing engagement and our final plan.

To fairly weight the evidence base collected we determined its materiality using three key tools:

1. **A new and robust quality assessment framework:** We used this framework to consider aspects such as how robust, representative and accurate our findings were and their external validity.
2. **A set of principles for trading-off divergent views:** We used these principles to give us consistent guidelines for determining which evidence, if any, to place more importance on when views differed.
3. **A quantitative data weighting:** We used an agreed weighting to appropriately reflect customers' and wider stakeholders' views in the measurement of overall acceptability.

Each phase of our engagement has been marked with a triangulation report providing insights and the evidence base that provides a golden thread between what we have heard and the commitments in our plan.

Further details of our triangulation approach, what our customers and stakeholders told us and how their views changed our plans are set out in Annex 1. A selection of these key insights is provided below:

Figure 69: Triangulation insights

Stakeholders' priorities	Triangulation insights
Delivering a reliable network	• Our focus should be on keeping our customers' lives running by providing reliable and uninterrupted supplies and minimising disruption to their daily activities • Customers and wider stakeholders believe that it is important to improve reliability a bit, for a lot of customers, *and* a lot for a small number of priority customer groups
Keeping our part of bills low	• We must balance our ambition with affordability of bills to deliver a plan that delivers more for less – with outputs improving across the board • COVID-19 is increasing consumers' concerns over the affordability of energy bills but delivering a reliable network remains their top priority
Meeting our customers' needs	• Future customers warn us not to rely on digital for 24/7/365 power cut support to customers – increased telephony support is what is needed • A reduction in the duration of emergency street works is the most highly-valued service improvement in ED2 by domestic and business customers
Supporting customers in vulnerable circumstances	• Stakeholders warn that COVID-19 will almost certainly increase the volume of customers impacted by transitory vulnerability, both now and beyond 2023 • We can exceed expectations by looking beyond the obvious and expanding our societal role in alleviating fuel poverty and poverty more generally in ED2 • There is very strong support for deploying Smart Street to as many customers as possible, targeting areas of high fuel poverty
Maintaining a safe and resilient network	• Customers say prevention is better than cure and ask us to reduce the overall risk of the network in the long term by replacing old equipment • We must mitigate the increased safety risk from both cyber and other attacks • Future customers want to see greater investment in green jobs such as apprenticeships so that we can build back better post-pandemic
Delivering an environmentally sustainable network	• Customers and wider stakeholders expect us to lead by example • Accelerating action to achieve Net Zero carbon emissions from our operations by 2038
Leading the North West to Net Zero	• Customers support stakeholders' 2038 regional ambitions with low-regrets investment to increase network capacity and enable faster pathways to Net Zero • Bill payers say we should have a trusted advisor role on energy efficiency, facilitated through an online hub • Customers are willing to pay for dedicated support and specific funding to support citizen-led community energy projects • There was also appetite for the socialisation of connection charges, although acknowledgement that this was part of a wider debate as to 'who pays' for the Net Zero transition

These reports have been instrumental in developing our plan and informing subsequent engagement. You can see our insights as well as more about what our stakeholders told us and how views differed and evolved in Annex 1.

9.5.3 Nuances in customer and stakeholder views

Our triangulation revealed nuances in views; customers typically attaching greater importance to the affordability of energy bills than stakeholders, who forgo bill reductions in favour of accelerating the transition to Net Zero. It has also proved very challenging to find consensus on our social role in alleviating fuel poverty. This is because our stakeholders feel that we share responsibility for supporting customers in vulnerable circumstances and leading the transition to Net Zero with other third parties.

Our principles for trading-off divergent views means that we have attached greatest importance to well-designed surveys based on random sampling that generate robust findings. This is because of the level of precision and certainty these studies offer and their ability to be truly representative of our region. We have also placed high importance on evidence directly relevant to the North West and applied a weighting to ensure urban and rural views are fairly represented.

This process has informed commitments in our plan that represent the best possible compromise between divergent stakeholders' views.

9.5.4 Examples of key input

The six phases of our ED2 consultation programme (see section 9.2) were designed to give our customers, consumers and stakeholders the opportunity to engage with us at a level of detail that suited them.

All of our proposals have been shaped by our customers and stakeholders. Here are some specific examples:

Headline commitment #1: We will drive the transition towards local Net Zero targets, through distribution system operation, following the path to making our own operations Net Zero by 2038.

We have recognised the priorities of our national stakeholders in the transition to Net Zero throughout our proposed investment strategies. We have particularly taken into consideration Ofgem's Decarbonisation Plan and the Climate Change Committee's Sixth Carbon Budget in how we can shape our business plan and how we can help these stakeholders deliver their ambitions, as well as the views of the Climate Assembly UK.

We have also engaged with our local and regional political and business stakeholders through a series of events where there is a great deal of commonality in ambition to deliver local Net Zero targets. At these regional political and business stakeholder events the majority of our stakeholders felt that we should take a proactive approach to bring forward future investment to increase network capacity and enable faster pathways to Net Zero. 100% of attendees in Cumbria and Greater Manchester and 91% in Lancashire said that Electricity North West should be proactive in its investment towards Net Zero.

"My aim as Mayor is to make Greater Manchester the UK's leading digital city region and the UK's leading green city region. Electricity North West has been working with Steve Rotheram (Liverpool city region mayor) and I on something called Net Zero North West and they are the first electricity provider in the country to have aligned with a city region plan i.e., our plan to be Net Zero by 2038. Going faster on green gives us better homes, transport, jobs and better lives for our residents"

Andy Burnham, Mayor – Greater Manchester Combined Authority

> **"A motion will be developed on behalf of the Committee to take to the full Council the need for greater coordination and leadership in the county, including leadership on the council estate, vehicles, EV roll out, planning incentives and a county-wide coordinated approach with key partners including Electricity North West"**
>
> Chair of Lancashire County Council External Scrutiny Committee

> **"Cumbria had a clear region-wide recommendation for decarbonisation by 2037 but each local authority was currently working to ratify their targets. It is helpful to have these discussions with Electricity North West to understand the importance of the decision-making timetable and the impact on business planning to ensure that investment does not become a barrier to adoption of LCT technologies and regional investment"**
>
> Stephen Hall – Assistant Director of Economy and Environment Economy & Infrastructure – Cumbria County Council

84% of our Plugged In Public Panel told us it was important or very important that the North West reaches Net Zero. When presented with four timeline options for how fast Electricity North West should move to make its operations Net Zero, 58% of members voted for Net Zero carbon emissions in our operations by 2038 to align with the end of RIIO-ED4 and the UK's seventh carbon budget.

> **"I believe it's worth investing more money now to save money long term. I also think we should be leading the way, hopefully encouraging other large organisations to follow suit in reaching or exceeding local and national targets"**
>
> Plugged In Public Panel member

> **"If they have the ability to do so, they should do it earlier"**
>
> Plugged In Public Panel member

We undertook a similar exercise with our Sustainability Stakeholder Advisory Panel and based on the four proposals presented, stakeholders were unanimous on the 2038 target.

Decarbonisation has always been a top priority for the members of Youth Focus North West and they consistently ranked it as one of their top priorities in our discussions with them.

> **"We will always prioritise Low Carbon Technologies as it's our future"**
>
> Youth Focus North West member

Headline commitment #2: We will remain one of the world's most reliable networks, reducing the number of power cuts and the average time people are without power by 20%.

Reliability has consistently come top of our customers' priorities and is seen by many as simply a 'hygiene factor'. Improvements in reliability are almost universally welcomed.

In our initial priorities research consumers were asked the priority areas they felt that we should be focusing on in RIIO-ED2. Reductions in the frequency and duration of power cuts were stated as the most important areas to focus our investment.

> **"Keeping your life running, ultimately if you don't provide a service, all of this is futile"**
>
> Domestic customer, Rochdale

'Delivering a reliable network' was ranked the most important priority for investment by our Plugged In Public Panel. Members of the panel stressed the importance of the service that we provide and how other activities rely heavily on firstly delivering a reliable network. They also highlighted the significant negative impacts an unreliable network would have on many customers' lives, particularly the most vulnerable customers.

> **"A reliable supply is paramount and impacts on vulnerable customers and will be more critical in the future as we decarbonise and switch to electric cars and other sources of supply"**
>
> Plugged In Public Panel member

> **"As a major consumer of electricity, and with a huge reliance on grid supplied power, interruptions to its power supply would be catastrophic for the operation of the business"**
>
> Manchester Airport Group, large energy users in-depth interviews

We continuously engage with our advisory panels to develop our plans and set challenging targets to deliver our stakeholders' strategic priorities, "Keep our customers lives running" is one of them. This priority continues to remain important with 88% of stakeholders who attended our summer 2020 regional advisory workshops feeling that it was important to invest in improving network reliability further.

Also, stakeholders attending our Chief Executive Advisory Panel recognised reliability as an important issue and noted the inconvenience of short-duration interruptions, particularly to businesses, often caused by transient faults which can be difficult to locate.

Headline commitment #3: We will deliver at least a 9/10 level of customer service and provide additional support to electricity users in vulnerable circumstances and fuel poverty.

Our Plugged In Public Panel discussed our Priority Services Register membership and many members commented that we should ensure no one slips through the net or is left behind. While discussing fuel poverty and what Electricity North West should do to support customers experiencing fuel poverty, some of our Plugged In Public Panel commented:

> **"Fuel poverty may be increasing yearly and every one of those people deserves to be supported"**
>
> Plugged In Public Panel member

Our Plugged In Public Panel were asked to rank groups in order of importance for extra attention and support to make sure they are not left behind in the energy transition. Vulnerable, fuel poor and worst-served customers were identified as most important.

In-depth interviews with 25 members of our Consumer Vulnerability Advisory Panel who, in their capacity as consumer representatives, were asked what the key concerns or issues that their customers face during a power cut are and a common observation was that consumers' natural worries are amplified, so consequently anxiety levels rise and the need for timely, useful and accurate information about interruptions is required to mitigate this.

> **"Community response and vulnerable customer support will be key going forward, post COVID-19. Electricity North West should harness this support"**
>
> Carlisle County Council – Consumer Vulnerability Advisory Panel member

For a full rundown of feedback on every specific proposal, see Annex 1 on triangulation. Individual engagement reports for any of our engagement are available on request due to volume of content gathered.

9.6 Building on our engagement for ED2

Our ED2 engagement programme has been the most ambitious we have ever attempted, and we are anxious to build upon what we have learned, and to retain some of the most successful elements of the programme.

Our 40-strong deliberative panel of customers was a huge success and provided great value insight helping us to arrive at a set of proposals that are rooted in the priorities of local communities.

We will retain this panel model in ED2 as well as maintaining large scale customer research and ongoing triangulation. We will also ensure that the work we have done to build up our engagement over the past two years does not go to waste. We will add to our experience, resources and capabilities to continue giving customers and stakeholders an even stronger voice in our activities.

Annex 31 sets out further details on our proposals for continuing and developing the conversation with our customers and stakeholders in RIIO-ED2.

In this section

Section 10

Track record

So far in ED1 we have consistently delivered for customers. We are proud to have delivered industry-leading performance across a range of outcomes for customers and stakeholders. This has been recognised by Ofgem in successive versions of their annual report which identifies Electricity North West as the only distribution network operator (DNO) to consistently deliver high performance across all objectives:

Figure 70: Comparative DNO performance[15]

	Reliability & availability					Connections					Social obligations					Customer service					Environment					Safety				
	16-17	17-18	18-19	19-20	20-21	16-17	17-18	18-19	19-20	20-21	16-17	17-18	18-19	19-20	20-21	16-17	17-18	18-19	19-20	20-21	16-17	17-18	18-19	19-20	20-21	16-17	17-18	18-19	19-20	20-21
ENWL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NPG	✓	✓	✓	–	–	👁	👁	👁	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	👁	✓	–	–
WPD	✓	👁	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–
UKPN	✓	✓	✓	–	–	👁	👁	👁	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	👁	✓	–	–
SPEN	👁	✓	✓	–	–	👁	👁	👁	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–
SSE	✓	✓	👁	–	–	👁	👁	✓	–	–	✓	✓	!	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–	–

✓ on track
👁 some issues, being managed and monitored
! significant uncertainty in scope and deliverables
– data not publicly available

15 Data taken from Ofgem annual reports. Data not included for 19-20/20-21 as not available in those annual reports.

10.1 Keeping our commitments

When we developed our ED1 business plan for 2015-2023, we made more than 40 specific commitments to customers. These commitments covered the broad areas of safety, reliability, customer, connections, social, and environment.

We have reported on our progress against these commitments each year showing transparency enabling customers and stakeholders to hold us to account and enabling them to challenge us on progress.

Our 2021 version of this ED1 business plan commitments report shows that we continue to deliver ahead or on track against the majority of commitments and that where we have identified any tracking behind target, robust plans are in place to meet them.

10.2 Delivering social obligations and customer service

10.2.1 Stakeholder engagement

We developed our ED1 plans through robust stakeholder engagement and have had our engagement programme assured against AccountAbility best practice standards each year since 2013. This shows that our development and delivery of activities throughout ED1 was done with quality stakeholder engagement at its heart.

We launched our first ever stakeholder satisfaction survey in December 2020 showing that overall satisfaction was at 81%. The study engaged more than 200 participants and achieved excellent representation across our stakeholder community.

The survey measured overall satisfaction, attitudes towards the relationship held, future engagement preferences and improvement areas. The results indicated a strong correlation between the frequency of engagement, stakeholders' familiarity with our business and overall satisfaction.

Satisfaction levels were 10% higher on average among advisory panel representatives where relationships are mature. This research told us that our engagement is inclusive, meaningful and mutually beneficial. During COVID-19 engagement has been migrated online and become more frequent, and stakeholders have indicated they would like to continue with this model in the future with only 3% indicating they wished to engage less often.

We have also established a stakeholder engagement team, CEO panel, consumer vulnerability and sustainability panels, and were one of the first networks to establish a new independent Customer Engagement Group.

Our scores in Ofgem's Stakeholder Engagement and Consumer Vulnerability incentive are mid-table relative to the other gas and electricity networks as of 2019-20. One network was rated weak, four average, seven as fair (including Electricity North West) and one as good.

10.2.2 Customer service

Three years ago our Customer Contact Centre training achieved the ServiceMark and TrainingMark accreditation by the Institute of Customer Service (ICS). We were re-accredited in March 2021, achieving a distinction. The ICS also survey 200 of our customers annually and in 2020 we achieved a satisfaction score of 87.9 (out of 100), 10.9 points higher than the utilities sector average.

The ICS concluded, "There is a clear commitment to delivering great service to customers. Evidenced not only by the increased scores in both surveys and the reaccreditation. But most importantly in how employees talk about their customers and their work – with passion, pride and genuine care".

We have consistently improved customer service across all areas to levels as high, if not higher, than the best retailers and other service providers. Since 2015 we have achieved an average customer satisfaction (CSAT) rating of 84.58%, reaching 88.5% in 2019-20 and 90.8% in 2020-21. CSAT is measured based on the scores given by samples of customers who have contacted us either during a power cut, to apply for a new connection, or for any other purpose.

The graph below shows our CSAT performance throughout ED1 showing continued improvement in all areas.

In ED1, Ofgem defined a 'worst-served customer' as one who experiences 12 or more higher voltage unplanned interruptions over a three-year period, with at least three higher voltage interruptions each year. We were the only network operator to make a commitment at the start of ED1 to have no 'worst-served customers' by this definition by the end of the period in 2023 and we are on track to deliver on that commitment.

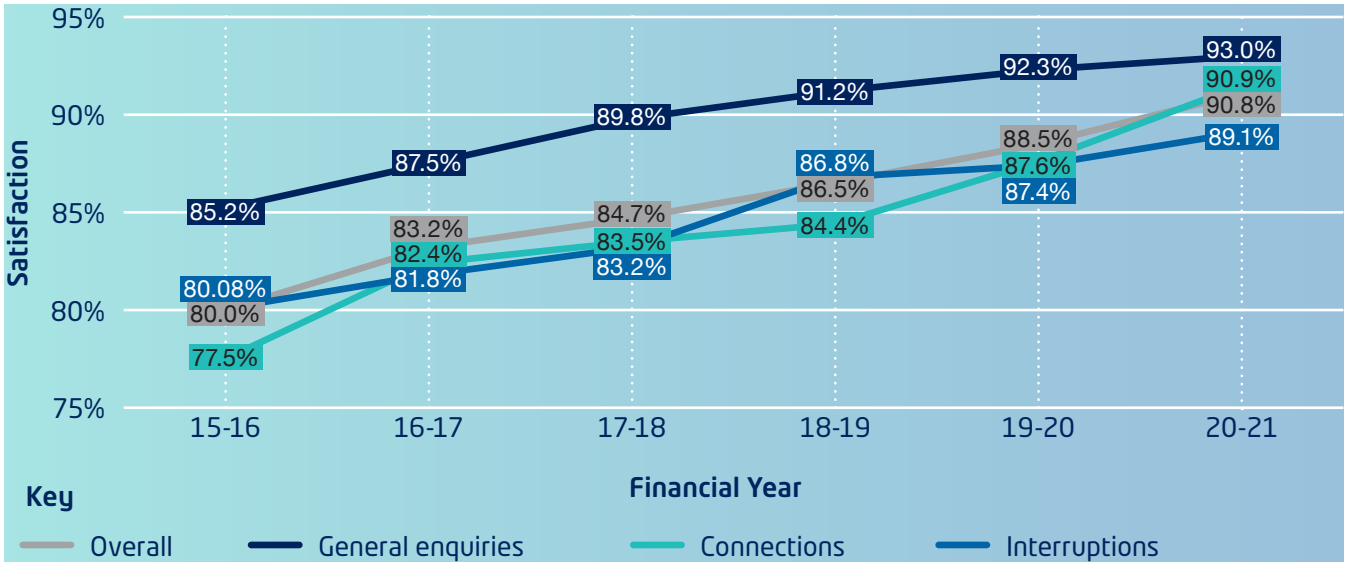
Since the beginning of ED1 we have delivered consistent improvements in customer satisfaction, alongside focused actions such as the sector-leading priority services data share with water company United Utilities to support customers who find themselves experiencing a period of vulnerability.

Our Priority Services Register of customer details has recently exceeded a reach of over a million people, increasing from around 600,000 at the start of ED1.

We have also put in place measures throughout ED1 to support those in our region in fuel poverty. The North West has one of the highest rates of fuel poverty in the UK at 12.1%. We have introduced efficient and specialist referral partnerships during ED1, including a two-year £500k-partnership with Citizens Advice that started in 2020.

Our funding has enabled the recruitment of a team of seven specialist advisors including five energy champions who proactively contact customers to offer support. The team also responds to referrals from us where we become aware of particular customers who may require assistance.

Figure 71: CSAT performance in RIIO-ED1



10.3 Delivering reliability

We deliver the lowest level of power cut frequency in the UK, outside of the London network area. The length of power cuts in the North West is also within the top quarter in the sector meaning that the impact is less severe than in most other parts of the country.

From the start of ED1 to 2019-20, we have reduced the number of power cuts by 24% and the average length of time customers are without power by 26%.

10.4 Network utilisation – headroom

We use utilisation to check that we are not over or under investing, with our risk level remaining similar balancing the increases in demand with network intervention.

Our forecasting of network utilisation is used to identify available capacity headroom for all future years up to 2050 including the beginning of RIIO-ED2, i.e. the end of financial year 2022-23 (FY23). The forecasting of network utilisation is following the process shown in Figure 72. This includes the assessment of future peak demand based on our ATLAS forecasting methodology for our DFES scenarios that uses half-hourly through year analysis of historical and future demand.

Once the future peak true demand is assessed, the Load Indices (LIs) for the EHV networks can be calculated taking into account the substation firm capacity and DG contributions. Figure 73 shows the network utilisation by the end of FY23 (beginning of RIIO-ED2) across all BSP and primary substations in our license area. Results correspond to our Central Outlook scenario from ENWL DFES 2020, which is the scenario that informs our proposed RIIO-ED2 baseline (ex-ante) allowance. It should be noted that these values are reported in the LI forecasts for FY23 of our RIIO-ED2 submission.

Figure 72: High-level assessment of the forecasting of the utilisation of network capacity

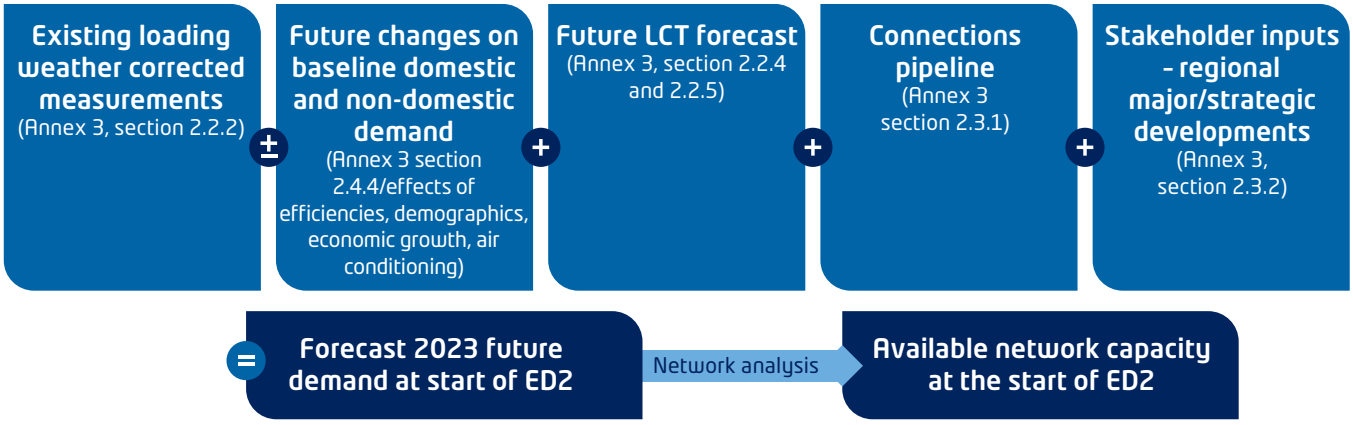
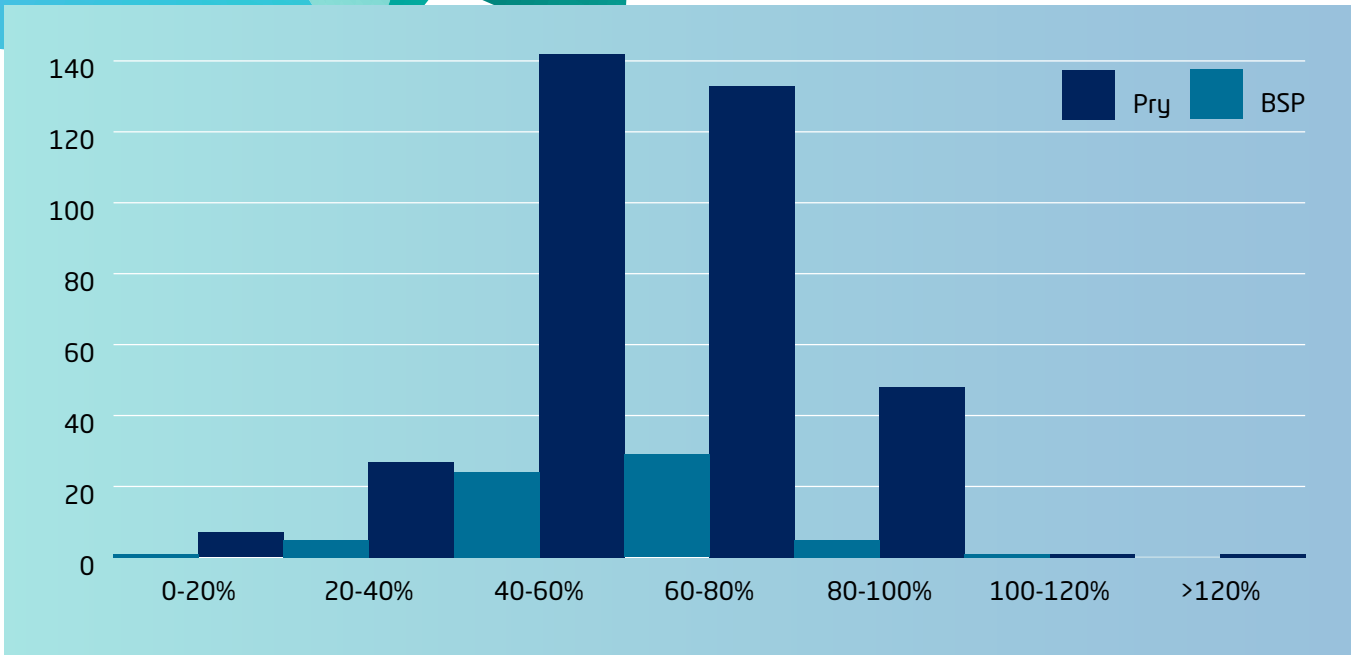


Figure 73: Capacity utilisation by the end of FY23 for BSP and primary substations in our EHV network



10.5 Delivering on the environment

We recognise that customers and stakeholders are increasing in their awareness and knowledge of network activities and in some cases becoming producers of electricity as well as users. With the challenge of reaching Net Zero being committed to by the UK Government in 2020 we have been working throughout ED1 to lead the way in this important area, based on customer and stakeholder input and requirements.

Our Leading the North West to Net Zero document makes our commitments clear. We have focused on decarbonising our own operations and helping colleagues, businesses and customers do the same.

One of our flagship achievements in ED1 has been to produce decarbonisation pathways reports for our three main regions, Greater Manchester, Lancashire and Cumbria. We have worked with other utilities in our region to develop the plans and have worked closely with Greater Manchester Combined Authority, Lancashire County Council and Cumbria County Council to ensure the plans are both realistic and incorporate whole-systems thinking.

We regularly report on our environmental measures for transparency and to provide an opportunity for stakeholders to review and challenge our progress.

In ED1 we have been delivering a dedicated service to support community and local energy customers and stakeholders. Our approach has been called best practice by Regen who are not-for-profit energy experts with specialisms in community energy and electricity networks.

Our Powering Our Communities fund has seen us support a number of organisations throughout the region, providing 19 projects with seed funding and expertise since 2018. We intend to build on this success in ED2 and expand our support to further address the issues our customers and stakeholders have told us they are facing.

Our community energy manager is on the board of Community Energy England which helps to give us insights into the issues affecting the sector nationally.

10.6 Delivering new connections

Our performance on the time to quote for new connections, and the time to connect them to our network has continued to improve in 2019-20 and beyond. This has been supported through the new self-service online quotations service, with all time to connect measures exceeding Ofgem's targets (despite the tightening of the targets for 2019-20).

We have improved performance in every category and only narrowly missed achieving the maximum incentive reward as judged by Ofgem for best performance. As well as the online system we have delivered strong service by focusing on our processes and making sure we have the right resources available to respond to customers' needs.

10.7 Innovation and continuous improvement

Innovation is key to our success. We seek to innovate every day across all our business activities to ensure that we can respond to the evolving needs and expectations of our customers with an increasingly uncertain energy future ahead of us. All of our innovation projects are aligned with our innovation strategy – to maximise the use of our existing network and combine new technology and creative thinking to provide real solutions to real problems.

We have led the industry in developing innovative solutions to current and future challenges for energy networks and many of our industry-leading initiatives will deliver significant benefits for customers in RIIO-ED2.

Projects like CLASS and Smart Street have seen us go from winning funding to developing and delivering effective solutions to reduce both costs and carbon emissions. Other projects like our LineSIGHT and Pre-sense innovations help identify faults before they happen.

Our £35m Network Management System went live in September 2021 and is enabling us to build a bespoke solution from the ground up to help us manage energy flows and give us an industry-leading complete network management tool fit for the 21st century.

10.8 Being efficient and investing in the future

We have worked hard in the first six years of ED1 to deliver cost efficiencies and share that benefit with our customers.

By identifying opportunities for efficiency, and delivering them, we've saved money that we have been able to reinvest to deliver other improvements. These improvements have been in reliability, resilience and customer service, as well as our next generation network management system.

This investment alongside other activities has helped us manage the network more efficiently remotely. This means that we have been able to reduce the impact of power cuts by identifying issues and restoring power more quickly when there is a problem on the network.

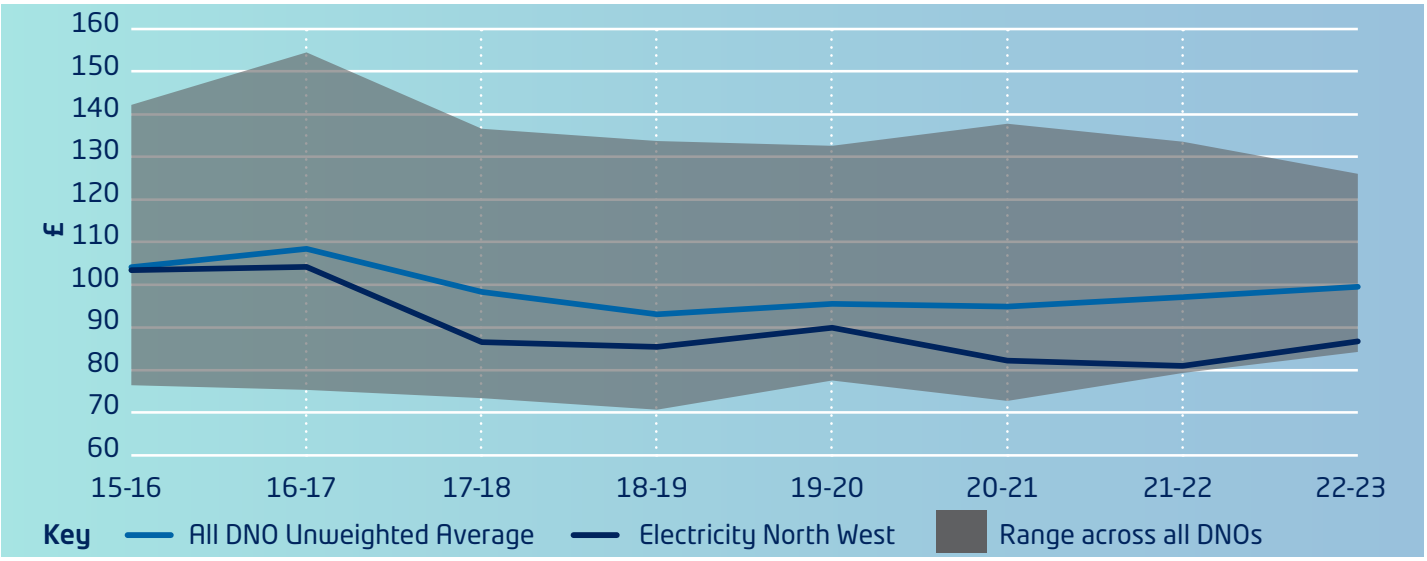
Upgrading our telecoms network, cleansing data and investing in active network management in ED1 makes us well placed to lead the transition to a different way of managing our network more actively, known as distribution system operation (DSO).

Through innovation and efficiency, we have outperformed our total expenditure (totex) by£93m[16], or 6.7%, in ED1 to date. This means we have delivered everything we said we would £93m under budget, saving customers money.

We expect to continue this trend of efficiency throughout ED1 saving £141m by March 2023. Our performance to date reflects efficiencies of £167m, not including £72m[17] that we reinvested including CLASS (£12m), Quality of Supply (£29m), operational IT spend above allowances to support our new network management tool (£12m) and non-operational IT to improve business systems and processes (£20m).

Typical charges are calculated by reference to published charges and standard Ofgem consumption volumes (Typical Domestic Consumption Values). Charges and time bands for each year and DNO area are obtained from the published Schedule of Charges and Other Tables on their websites. The Ofgem TDCV decided on in 2017 for Profile Class 1 Medium of 3,100kWh is used, consistent with the RIGs. This is profiled according to the Profile Class 1 Domestic Consumption Profile published by Ofgem in January 2020, which applied to the published time band information gives a split of Red, Amber and Green units for the last two years of the RIIO ED1 price control. The numbers of days in the year is assumed at 365.

Figure 74: Electricity North West Typical Customer Bill vs other DNOs (range)



16 2012-13 prices
17 NB. Total and figures below are subject to rounding.

10.9 Our people

Our people are our most important asset. Creating a great place to work where every colleague can be themselves and reach their full potential, enables us to produce great results and deliver a reliable, sustainable network that meets the future needs of our customers.

10.9.1 Our people strategy

Our people strategy is simple: to Attract, Develop and Retain a workforce that is reflective of the communities we serve.

Attract: Working with our communities to attract candidates from diverse backgrounds, we offer opportunities at all levels for apprentices, graduates or experienced hires into a variety of roles. In the past two years we have implemented initiatives to increase our ethnicity and gender mix. Our ethnicity mix has grown from 2 to 4%. In September 2020, 26% of our 19 apprentices were from an ethnic minority and 21% were female. We have increased the percentage of females in our leadership team to 32%, compared to 25% for the rest of the business.

Develop: We have invested in our own state-of-the-art Training Academy in Blackburn to deliver technical and professional training to apprentices, trainees, graduates, existing colleagues and contractors who work on or adjacent to our network. Continued and sustained investment in colleague development supports our company-wide succession planning work and mitigates the risks of an ageing demographic.

Retain: Our success in retaining colleagues is reflected in our low attrition rate of 8% per annum. Our ability to retain our people is testament to our commitment to build careers and make Electricity North West a great place to work through opportunities for development, great benefits packages and good colleague engagement.

To make sure our benefits package remains relevant and attractive we have introduced Willis Towers Watson salary benchmarking which helps promote fairness and transparency in salary reviews.

10.9.2 Apprenticeships

Since 2017, we have been developing our award-winning apprenticeship programmes to include all relevant training, behavioural skills and assessments to comply with Institute of Apprenticeship standards. To date 46 apprentices have been appointed to permanent positions in the business and the number who have completed their apprenticeships is almost double the national average.

10.9.3 Engagement

Direct engagement with colleagues takes many forms including a monthly team brief, CEO blog and roadshows where our executive team meet colleagues to talk through business plans and hear their feedback. In 2015 we implemented a robust approach to measuring engagement with a six-monthly climate survey. In our recent survey, response was 76.2% and overall engagement was 75.46%, putting us in the top quartile for engagement when benchmarked against companies of a similar size.

10.9.4 Diversity and inclusion

We started our formal D&I journey in 2019, trialling various initiatives to attract diverse candidates into the business. We have learned a lot since then and have undertaken several activities to raise awareness and become a more diverse employer, including setting up a D&I steering group, gaining accreditation from a number of recognised external bodies and launching a new recruitment system which allows for greater accessibility. The launch of our D&I strategy in December 2021 will continue to drive a change in culture, behaviours and performance.

10.9.5 Mental wellbeing

In 2018 we set out to encourage our colleagues to talk about mental health and seek support where needed. We have made significant progress in this area. We have signed up to the Time to Change Pledge and we are a member of the charity Mates in Mind, from whom we have received recognition for our proactive approach to mental health. In addition, we have trained dedicated mental health champions across the business, introduced mental health awareness training for all colleagues, provided an online colleague portal offering advice and guidance and we provide free counselling and cognitive behavioural therapy.

Section 11

Glossary

In short	In full	Definition
AA1000APS	AccountAbilty Principles Standards	An internationally-recognised standard for stakeholder engagement
AONB	Area of Outstanding Natural Beauty	Areas which are protected by legislation due to their visual or environmental qualities
AT	Acceptability testing	An analytical technique to assess how acceptable particular propositions are to customers
	Asset management	A systematic and cost-effective process of operating, maintaining, upgrading and disposing of assets
BCF	Business Carbon Footprint	Measure of the carbon emissions of a business
BEIS	Department for Business, Energy and Industrial Strategy	The government department responsible for energy issues among other areas
	Black start	A restart of the electricity distribution and/or transmission network after a complete loss of power due to lack or loss of generation. Increasingly referred to as 'Electricity System Restoration'
BPSR	Business Priority Services Register	A free support service operated by Electricity North West to help reduce the impact of power cuts on our business customers
CAF	Cyber Assessment Framework	Guidance for organisations to complete self-assessments for cyber risks
Capex	Capital expenditure	Expenditure on investment in long-lived network assets, such as underground cables, overhead electricity lines and substations
CBA	Cost Benefit Analysis	Systematic process for calculating and comparing benefits and costs of a project or investment decision
CCG	Consumer Challenge Group	Ofgem-appointed group who will assess draft business plan submissions and provide feedback before final submissions to Ofgem in December 2021
CEG	Customer Engagement Group	Independent groups set up by network companies as part of Ofgem's stakeholder engagement guidance. The groups have responsibility to challenge the business to ensure business plans address the needs of customers
CI	Customer Interruptions	Number of customer interruptions per 100 connected customers
CLASS	Customer Load Active System Services	An innovation from Electricity North West to provide additional capacity on the network by reducing voltage when required by National Grid
CML	Customer Minutes Lost	The duration of interruptions to supply per year. This is the average customer minutes lost per customer per year, where an interruption of supply to customer(s) lasts for three minutes or longer
CNAIM	Common Network Asset Indices Methodology	Framework for assessing condition-based risk for electricity distribution assets
	Consumer	An individual, business or organisation that uses Electricity North West's services (may be domestic or business and includes future customers)
	Cost of capital	The minimum acceptable rate of return on capital investment. It includes both the cost of debt to a firm, and the cost of equity
	Customer	An individual, business or organisation that pays for Electricity North West's services (may be domestic or business and includes future customers)

In short	In full	Definition
CIVC	Customers in vulnerable circumstances	Customers or consumers who may need additional support due to their current situation, who may be more adversely affected by power cuts or other issues relating to the services that we provide
CO_2	Carbon dioxide	A greenhouse gas, contributing to climate change
	Competition tests	Tests introduced by Ofgem into distribution network operators' licences in 2010 to assess compliance with legal requirements in respect of the making of connections and to measure the development of competition in relevant market segments of the connections market. Passing these tests allows a DNO to charge an unregulated margin for contestable connections activities; not passing them could result in Ofgem referring a DNO to the Competition Commission
	Competitive connections	Connections that can be completed by third-party providers, not just distribution network operators
CVP	Customer Value Proposition	A business plan proposition that goes beyond the usual role of a distribution network operator but which is proven to provide additional value to customers
CSAT	Customer satisfaction	Measurement used to quantify the degree to which customers are satisfied with a service
	Decarbonisation	The reduction or removal of carbon dioxide from a process
	Defra	Department of Environment, Food and Rural Affairs
	Distributed energy	Small power sources embedded in the distribution network to provide power to meet demand, rather than those connected to the transmission network
DFES	Distribution Future Energy Scenarios	Forecasts providing a projection for growth or reduction of energy
DNO	Distribution Network Operator	A company that operates the electricity distribution network which, in England, includes all parts of the network from 132kV down to 230V. There are 14 DNOs in Great Britain which are currently owned by six different groups
DPCR5	Distribution Price Control Review 5	The price control applied to the electricity distribution network operators from 2010-2015
DRS	Discretionary Reward Scheme	An Ofgem run scheme designed to financially reward DNOs for better performance in areas that cannot be easily measured or incentivised
DG	Distribution generation	Any generation which is connected directly to the local distribution network, as opposed to the transmission network, as well as combined heat and power schemes of any scale
DSO	Distribution System Operation	The execution of a set of functions and services that need to happen to run a smart electricity distribution network in the interests of energy consumers
EA	Environment Agency	The regulator responsible for monitoring and regulating environmental policy across a range of sectors in England and Wales
EAP	Environmental Action Plan	A strategy to enable the decarbonisation of the network and to reduce wider environmental impacts of network activity
	Embodied carbon	Carbon footprint of a material or product which considers how much greenhouse gas is released throughout the supply chain
	Engagement	Organisational process to involve people who may be affected by decisions or can influence actions of an organisation

In short	In full	Definition
EJP	Engineering Justification Paper	Sets out the scope, costs and benefits for major projects or aggregated investment programmes aimed at reinforcing the network or improving asset health
ELT	Executive Leadership Team	The eight directors at Electricity North West
EHV	Extra High Voltage	In relation to our distribution network this means 33kV
ENA	Energy Networks Association	The trade organisation that represents energy networks in the UK
ENW	Electricity North West	The North West's distribution network operator
ESO	Electricity System Operator	The system operator for Great Britain, responsible for the second-by-second balancing of supply and demand. The ESO role is currently carried out by National Grid
EV	Electric vehicles	Vehicles that are powered by electricity
	Financeability	How an organisation is funded. Financial models are used to determine whether the regulated energy can finance its necessary activities and earning a return on its regulated asset value under the proposed price control
	Flexible services	Contractual arrangement provided by third parties to increase electricity capacity or reduce demand
	Framework contractors	A contractor with whom we have a long-term agreement to carry out work at a pre-agreed price and under pre-agreed terms and conditions
	Fuel poverty	A fuel poor household is defined as one that needs to spend 10% or more of their household income on all fuel use to maintain satisfactory heating
	Future customer	People who are end users of electricity now but do not currently have bill paying responsibility
	Ex ante	Refers to a value or parameter established upfront (e.g. at the price control review to be used in the price control period ahead)
	Ex post	Refers to a value or parameter established after the event (e.g. following commencement of the price control period)
	Fast money	Fast money allows network companies to recover a percentage of total expenditure within a one-year period
	Gearing	Gearing is the level of indebtedness of a company. It is generally measured as net debt as a percentage of the company's total capital
GEMA	Gas and Electricity Markets Authority	Ofgem's governing body
GDNs	Gas Distribution Networks	GDNs transport gas from the National Transmission System to final consumers and to connected system exit points
GMCA	Greater Manchester Combined Authority	The 10 Greater Manchester councils and mayor, who work with other local services, businesses, communities and other partners to improve the city region
	Green recovery	Government plan to encourage investment and cut carbon emissions following the coronavirus pandemic
GSOP	Guaranteed standards of performance	Guaranteed standards set service levels to be met in each individual case and are established by a Statutory Instrument. If the licence holder fails to provide the level of service required, it must make a payment to the customer affected subject to certain exemptions

In short	In full	Definition
	Hard-to-reach	People our business impacts in some way, but who rarely, if ever, engage with us. This lack of engagement could be the result of limited awareness or appetite, or a belief that their participation will not make a difference
	Heat pump	Device that transfers heat from the ground, water or air that can be used to heat homes
HSE	Health and Safety Executive	A public body responsible for regulating health and safety in Great Britain with the primary function to secure the health, safety and welfare of people at work and to protect others from risks to health and safety from work activity
HV	High Voltage	6.6kV or 11kV in our area
ICE	Incentive on Connections Engagement	Regulatory incentive scheme for distribution network operators to help improve ongoing engagement with larger connections stakeholders and to ensure that we deliver our commitments
ICP	Independent Connection Provider	Accredited company that can build electricity networks to the specification and quality required for them to be adopted by either a distribution network operator or independent distribution network operator
IDNO	Independent Distribution Network Operator	Company licensed by Ofgem, to own and operate electricity networks, operating within but separate to distribution network operators' areas
IRM	Innovation Rollout Mechanism	A regulatory mechanism to facilitate the rollout of a proven innovation that meets certain requirements into business-as-usual
kV	Kilovolt	A measure of electrical power (1000x a watt)
kWh	Kilowatt hour	A measure of electrical energy
LAEP	Local Area Energy Plan	A plan to inform, shape and enable key aspects of the transition to Net Zero
	Load	The amount of power flowing through a network or asset
LCNF	Low carbon networks fund	A previous mechanism introduced in RIIO-ED1 to innovate low carbon technology to be deployed on the network
LCT	Low carbon technology	Technologies that emit low levels of CO_2, such as electric vehicles, solar panels, wind turbines and heat pumps
	LineSIGHT	LineSIGHT technology is Electricity North West's integrated, customised IT solution
LO	License Obligation	An obligation placed on the network companies to meet certain standards of performance
LV	Low voltage	Voltage up to 1kV
Max-diff	Maximum difference	An analysis technique, also known as 'best-worst scaling' used to gauge survey respondents' preference score for different items or services. Researchers ask the respondents to pick the most and least important factors in given answer options
NARMS	Network Asset Risk Metrics	Metrics to calculate future risk of an asset to prioritise those which need to be replaced or refurbished
	Net Zero Carbon	Reducing greenhouse gas emissions with the goal of balancing the emissions produced and emissions removed from the Earth's atmosphere
NGO	Non-Governmental Organisation	A not-for-profit organisation that is also independent of government
NIA	Network Innovation Allowance	A set allowance agreed for distribution network operators as part of their price control

In short	In full	Definition
NIC	Network Innovation Competition	Annual funding competition for larger and more complex innovation projects
ODI (F or R)	Output Delivery Incentive (Financial or Reputational)	An output that is financially incentivised, or reputational only in nature, linked to outputs set by Ofgem or proposed by a network company
Ofgem	Office of Gas and Electricity Markets	Ofgem is the regulator responsible for gas and electricity markets in the UK
ON	Open Networks	A project coordinated via Energy Networks Association to transform the way the energy networks operate to meet Net Zero
Opex	Operating expenditure	Expenditure on operating and maintaining the network, e.g. fault repair, tree cutting, inspection and maintenance, engineering and business support costs
OT	Operational Technology	Technology that interfaces with business systems to manage, monitor and control operations
PCB	Polychlorinated Biphenyl	A family of Persistent Organic Pollutants (POPs) which, while being good electrical insulators, were never specified for use by electricity network operators. They were, however, used in some industrial electrical applications due to their qualities of chemical stability, fire resistance and not easily generating a vapour. PCBs can harm human and environmental health and there is a legal requirement to remove from use all PCB contaminated equipment by 31 December 2025
PCD	Price Control Deliverable	A mechanism to capture those outputs that are directly funded through the price control and where the funding provided is not transferable to a different output or project.
POP	Persistent Organic Pollutants	Toxic chemicals that adversely affect human health and the environment
PSI	Planned Supply Interruptions	Notice of a planned interruption to supply. Distribution companies are required to give customers at least two days' notice for planned power cuts that enable work to be carried out on the network
	Price control	A period of time for which revenues that can be earned are set for a specific period by regulators for regulated companies. The current period RIIO-ED1 runs from 2015-2023. The next period, RIIO-ED2 runs from 2023-2028
PSR	Priority Services Register	A free register operated by distribution network operators providing those who qualify with free support services
	Reliability	The ability of a network to provide a continuous supply of power
	Resilience	Ability of a network to cope with extreme situations i.e. storms or floods and recovery quickly from blackouts
	Renewable energy	Energy created from sources that can't run out, such as wind, solar and tidal power
RAV	Regulatory Asset Value	A regulatory construct that reflects a company's historical investment, adjusted for inflation
	Re-opener	A mechanism used by Ofgem to alter or re-set the revenue allowances (or the parameters that give rise to revenue allowances) under a price control before the next scheduled price control review

In short	In full	Definition
RIIO	Revenue = Incentives + Innovation + Outputs	Ofgem's current regulatory framework standing for the calculation to determine a company's revenue using incentives to deliver innovation and outputs
RIIO-ED1	Revenue = Incentives + Innovation + Outputs, Electricity Distribution 1	The first RIIO price control period for electricity distribution networks running from 2015-2023
RIIO-ED2	Revenue = Incentives + Innovation + Outputs, Electricity Distribution 2	The second RIIO price control period for electricity distribution networks running from 2023-2028
RoRE	Return on Regulatory Equity	The financial return achieved by shareholders in a licensee during a price control period from its out-turn performance under the price control
RPE	Real Price Effects	An increase in the real (adjusted for inflation) price of a good/ service or basket of goods and services
RPI	Retail Price Index	Measure of inflation
RRP	Regulatory reporting pack	A document that is published as part of the price control settlement which sets out further detail on how the price control is to be implemented and how compliance with it will be monitored
	Segmentation	A way of grouping individuals to ensure representative engagement and response to views. Grouping can be via demographic or attitudinal and behavioural attributes
SF_6	Sulphur Hexafluoride	Sulphur hexafluoride (SF_6) is a gas with excellent electrical insulation and other properties, which has led to its widespread use in electrical switchgear. However it is a potent greenhouse gas, so we are planning to reduce its use in our network and to minimise its escape into the atmosphere
	Slow money	Slow money is where costs are added to the RAV and therefore, revenues are recovered slowly (e.g. over 20 years) from both current and future consumers
	Smart Grid	A distribution network capable of dynamically routing energy to balance supply and demand
	Smart Meter	Meters that record the energy consumed in a property and can be read remotely
	Stakeholder	An individual or organisation that is affected by us, that can influence our performance or that we have a legal, financial or operational responsibility to
STEM	Science, Technology, Engineering, Maths	Approach to learning and development that integrates science, technology, engineering and maths
	Substation	Part of the distribution network that reduces electricity voltage so that it is easier and safer to deliver electricity to homes and business
	Sustainable	Capable of being sustained long term at a steady level without causing ecological damage
	Switchgear	A device that can switch on and off a supply of electricity and hence controls its flow
TO	Transmission Owner	The company which owns and maintains the high voltage electricity transmission system – in England this is National Grid

In short	In full	Definition
TTC	Time to Connect	The time taken by a distribution network operator from a customer accepting a quote for a new connection, to that connection being made
TTQ	Time to Quote	The time taken by a distribution network operator from a customer applying for a connections quote to providing the quote
Totex	Total Expenditure	A distribution network operator's total expenditure on the regulated business
	Transformer	Converts electricity from one voltage to another.
	Transitory vulnerability	A temporary situation that may make consumers vulnerable for a particular period
	Triangulation	A qualitative research strategy employed to test validity through the convergence of information from different sources
tCO_2e	Tonnes of carbon dioxide equivalent	
UM	Uncertainty mechanism	A regulatory mechanism used by Ofgem to allow price control arrangements to respond to change. They protect both end consumers and network operators from unforecastable risk or changes in circumstances
UVA	Undergrounding for visual amenity	Method for improving visual amenity while maintaining power. Decision to underground cables must balance concerns about the visual impact of overhead lines and the cost of undergrounding to consumers
	Whole Systems	Solutions arising from energy network companies and system operators coordinating effectively, between each other and with broader areas (not just the transmission or distribution networks), which deliver value for consumers
WACC	Weighted Average Cost of Capital	This is a weighted average of the expected equity and debt for the network companies
WTP	Willingness to pay	The maximum amount a customer is willing to pay for a product or service
WSC	Worst-served customer	In ED1, a worst-served customer is defined by Ofgem as a customer who experiences 12 or more high voltage unplanned interruptions over a three-year period, with at least three higher voltage interruptions each year
YFNW	Youth Focus North West	An organisation that works in partnership with young people to give them a voice where it counts. It gives young people the opportunities to make a difference individually, locally, regionally and nationally

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