



OUR DSO ACTION PLAN

March 2022



Scottish & Southern
Electricity Networks



INTRODUCTION

The building blocks for our net zero future

Distribution System Operation (DSO) is the critical part of the energy value chain that must be developed at pace to deliver flexibility - the core tool that will enable consumer opportunity and participation, and create the system capacity needed to achieve net zero.

Our journey to net zero is well underway. The Climate Change Committee have been clear that uptake of low carbon technologies, necessary to deliver net zero targets, could almost treble GB electricity demand by 2050. This will need new system capacity to manage the growth in connections and meet customer demand. Our holistic approach, set out in our DSO Action Plan, takes advantage of all available technologies to optimise our existing network; maximise the opportunity from flexibility contracts and connections; and leverage whole system opportunities before we commit to investing in new network.

It is crucial that over the RIIO-ED2 period (2023-28) we put in place the building blocks that will allow the development of new marketplaces, scalable process, systems and new capabilities to engage with our communities. We will deliver over £460m of benefits through deferred reinforcement and avoided capital expenditure in ED2 alone, alongside significant whole system benefits, and providing 100% network visibility through a mix of monitoring and data analytics.

We have strong experience in DSO, established in RIIO-ED1 through learning by doing which enables us to be ambitious, credible and efficient. But DNOs need to further develop DSO services to leverage the value from new technologies, and to collaborate across different sectors and play an active role in joint planning and delivery. For example, our ED1 Local Energy Oxfordshire DSO trial, is developing an understanding of the energy ecosystem - from forecasting to market development, participation and technical operation - to inform the modernisation of our legacy data and systems and gives us a firm foundation to build on. We are proving we can deliver value, with around £60m of consumer savings generated from flexible connections already in ED1.

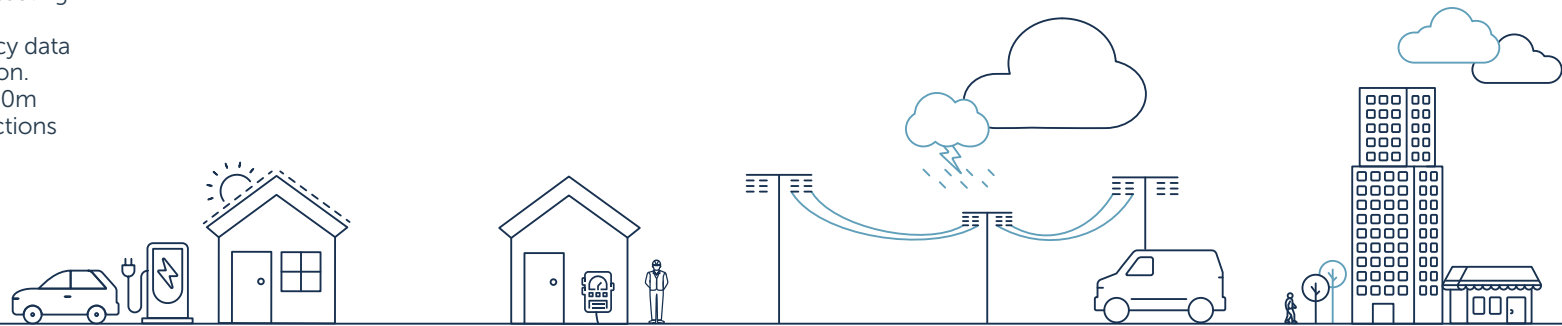
We understand potential concerns around managing perceived conflicts of interest through the integration of DNO and DSO functions. We have therefore set out the additional measures for ED2, building on established layers of protection well tested over ED1. By aligning our DSO functions with our existing DNO infrastructure customers will benefit from a more rapid delivery of DSO capability, greater system reliability, and for significantly less cost than alternative approaches to DSO.

Ultimately, we all need to change our behaviour to deliver net zero: how we get around, what we eat, how we live. Our DSO Action Plan will help the local communities we serve continue to thrive and provide the foundations to deliver the energy transition at an affordable price that gives everyone the opportunity to participate. At SSEN, we are determined that the action we take to decarbonise society leaves no person or community behind, and fully ensures a fair transition to net zero.

DSO will give customers the choice to participate in flexibility services and new marketplaces with ease. We want to work with innovative companies who supply customers with transport, heat, homes, appliances, food and water to optimise the energy system behind the scenes. Doing this will help keep bills low and minimise carbon emissions, in line with individual, community, local authority, industry and government ambition.



Andrew Roper
Distribution System Operations Director,
SSEN Distribution





SSEN'S ROLE IN DELIVERING NET ZERO

Scottish and Southern Electricity Networks (SSEN) Distribution is the electricity distribution arm of SSE. We serve over 3.8 million customers across the diverse and unique geographies of the north of Scotland and central southern England.

Our role has never been more important. We are committed to working with our local communities to deliver a safe, reliable supply of electricity to their homes and businesses today, and the infrastructure to align with UK and Scottish Governments' commitments to a net zero tomorrow. We're responding by readying our network to handle high volumes of low carbon technologies (LCT), such as electric vehicles, heat pumps and local renewables that will connect to the grid, which will help provide the increased capacity we'll need in the future.

We're planning for the expected three-fold increase in electricity demand that these technologies will bring and working to anticipate where and when new demand will emerge. We will ensure the measures are in place to manage supply and demand to balance the grid, either through flexibility using LCTs, or through reinforcement to the network.

Our RIIO-ED2 Business Plan lists our commitments over the five years from 2023, fully informed by rigorous stakeholder testing and scenario analysis. This is the critical time frame when the building blocks to achieve net zero by 2050 and 2045 in Scotland must be put in place. We plan to invest nearly £4bn in our network without increasing our costs on customers' bills, which means by 2028 we will be ready to connect 1.3 million electric vehicles and 800,000 heat pumps on our network, as well as 8GW of distributed generation and storage.

We are fully committed to a fair transition that offers considerable opportunities - with the right data, forecasting, regulations, skills and investment, we can ensure a transition that is smart and fair.

Over **3.8 million** homes and businesses served by our networks

Over **3,700** employees across the country

More than **770,000** customers on our Priority Services Register

130,000km of overhead lines and underground cables

106,000 substations

100+ subsea cables powering island communities



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1

WHAT DOES THE FUTURE ENERGY ECOSYSTEM LOOK LIKE?

Electricity DNOs are critical enablers of the UK's ambition to achieve net zero carbon emissions by 2050. The development of DSO capabilities will lead to additional, cost-effective energy capacity to meet the expected growth in future demand from a changing energy network. Our role will be to deliver new marketplaces for flexibility services through an adapted and enhanced infrastructure, rich in opportunities for customers to get involved.

Our role is to work in partnership to optimise our electricity networks, data and emerging technology to facilitate the decarbonisation of transport and heat at maximum pace, and at minimal cost to consumers.

DSO demystified...

New DSO services will result in lower costs per unit of energy, opportunities for new markets for customers to buy and sell clean energy, and viable local energy solutions that will drive decarbonisation at the community level. We've outlined the key enablers of this change below, which you will see referenced throughout this Action Plan:

Flexible connections: In return for a faster, and/or cheaper connection to the network, the customer accepts a contractual requirement for their capacity to be reduced under specific conditions to facilitate a known constraint on the network.

Flexibility services: On parts of the network that are constrained some customers voluntarily allow their assets to be used to increase / decrease power flows to help manage a temporary lack of capacity, planned outages or even emergency conditions. Customers are rewarded for the flexibility services provided, as agreed with the network operator.

Deferred reinforcement: Creating capacity using flexibility reduces our need to strengthen, or reinforce the network to meet peaks in demand. Reinforcement is an expensive and permanent solution which may, in the future, prove not to have been necessary if higher demand is not sustained. By deferring reinforcement, networks can be more certain that network investment will benefit customers long into the future.

Whole system: In the past, providers of electricity, gas, water, industry, transport, housing and municipal services (among others) worked in silos and planned independently. Now, net zero targets have driven the need for all these providers and others to collaborate across a 'whole system' to speed up the decarbonisation of society and deliver services more efficiently.

Low Carbon Technologies (LCT): LCTs are processes or technologies that consume or produce power with substantially lower amounts of carbon dioxide emissions. They include solar and wind power, bio/hydrogen-fuel power generation, storage, heat pumps and electric vehicles. Some of these LCTs can operate on the power grid as **Distributed Energy Resources (DER)** using flexibility to manage capacity and earn income for the owner.

From DNO to DSO: Priorities and principles



Figure 1: The five key pillars of how we will unlock DSO potential for all our stakeholders



DSO and DNO delivering together

Ofgem's RIIO-ED2 (2023 – 2028) will be transformative for the UK's energy sector, and we are preparing now for a rapid acceleration of renewable and distributed energy solutions, millions of new electric vehicles on our roads, a revolution in the way we heat our homes and a radical transformation in customer behaviour.

Future electricity networks will need to be capable of delivering three times the amount of today's energy by 2050 to meet the government's net zero plan, and at least twice as much by 2035. The solution lies in DNO and DSO co-operation and alignment: DSO activities will ensure data and sufficient network capacity is available when customers need it, while DNO activities ensure that the network is safe, reliable and operating with great efficiency.



DNO and DSO activities **naturally optimise** the asset's health with utilisation before upgrading or replacing the asset, improving overall network performance to reduce power cuts while keeping bills down.



Our **Flexibility First** principle means growing capacity with flexibility services before reinforcement, allowing customers to connect to a network when they want. Flexibility improves network capacity, and health. By having DNO and DSO together we can co-ordinate work on the network to minimise inconvenience and reduce costs.



Delivering net zero while maintaining operational reliability will require significant coordination. Our DNO and DSO Together Strategy makes use of the **inbuilt synergies** already in place between these two distinct functions.



Our approach has been **independently reviewed** by NERA Economic Consulting (page 21), whose report sets out the benefits of a combined but arm's-length approach of operating the DNO and DSO together.





New opportunities from DSO services

The combined impacts of climate change and net zero legislation, and consumer demand for reliable, clean and affordable electricity, are driving a rapid acceleration of DER, millions of new EVs and a transformation in the way we heat our homes. Networks will need to manage substantially greater volumes of electricity to meet future demand, and fulfill our customers' opportunity to benefit financially from new markets and products.

Digitalisation as a key enabler

Much of our DSO Action Plan is enabled by SSEN's commitment to digitalisation, presumed open data principle and improvements in data governance and quality. Digital will deliver the critical interface between DSO and customers, allowing them to access the network information they need when they need it, register for flexibility services and participate in future flexibility market-places. Our Digital Strategy is central to how we respond to the key themes shaping the energy system and where SSEN can drive improvements for society over the next decade.

Maximising efficiency, carbon reduction and customer value

DSO capabilities have as much responsibility as our digital strategy for delivering positive outcomes for customers in the four key areas shaping the energy system, illustrating the powerful linkage and benefit of building our DSO function in alignment with existing SSEN strategy. The four major trends shaping the energy system over the next decade:

- Digitalisation:** Our DSO strategy is aligned with SSEN's Digital Strategy to scale analysis and services, save costs, allow others to provide innovative services, and provide open data supporting whole system and local authority plans
- Democratisation:** DSO will ensure equal opportunity to all customers, giving everyone the ability to participate and benefit
- Decarbonisation:** The role of the DSO will be critical in delivering net zero for our network and for our customers
- Decentralisation:** DSO will facilitate a market that trades distributed energy and services from any source to any point of demand

Opportunities for new and existing customers



Figure 2: New opportunities will exist for different types of customers through new DSO services



2 DSO SERVICES DELIVERING THE RIGHT OUTCOMES

Introducing the three function areas of DSO

What stakeholders expect from DSO

The extensive stakeholder engagement we undertook to support the development of our RIIO-ED2 Business Plan: **Powering Communities to Net Zero**, confirmed the needs and priorities of stakeholders from DSO services:

DSO SERVICES MUST:

- 1 Engage with and educate all stakeholders to enable them to participate in the flexibility markets
- 2 Establish clear and measurable metrics to assess DSO performance
- 3 Collaborate and coordinate with local authorities and community energy groups to assist them in local area planning and support their net zero ambitions



These three priorities align with Ofgem’s required functions of DSO and have fully informed our structure and approach, set out on this page.



DSO core functions that make a positive impact

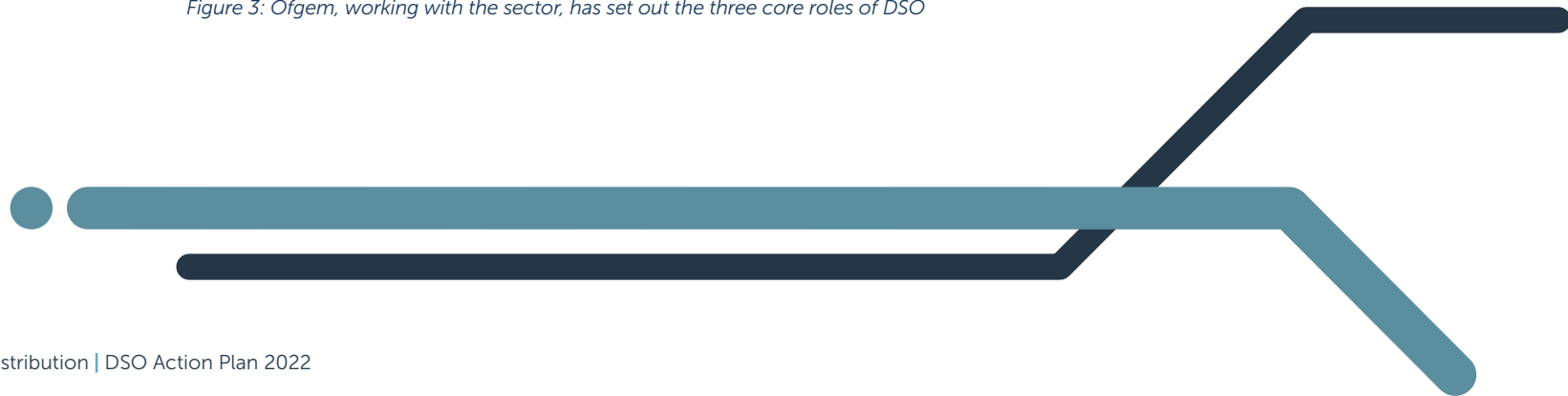
We’ve applied our three strategic priorities for ED2: accelerating towards net zero; providing a valued and trusted service, and delivering a safe, resilient and responsive network, and aligned the three core DSO functions to maximise opportunities for stakeholders.

DSO CORE FUNCTIONS:

- FORECASTING AND PLANNING FUTURE NEEDS
- DEVELOPING A FLEXIBILITY MARKETPLACE
- DELIVERING NETWORK FLEXIBILITY




Figure 3: Ofgem, working with the sector, has set out the three core roles of DSO





Our strategic priorities

...and our corresponding DSO functions

 **Accelerating progress towards a net zero world**

Forecasting and planning future needs

DSO will provide data to ESO and other parties to allow them to plan and optimise whole system solutions, network investment and flexibility services that will provide communities with the energy capacity they require at an efficient cost


Our Network Visibility Strategy explains how we are using smart meter data, Low Voltage monitoring and enhanced analytics to improve our forecasting. We will take a transparent approach to reporting, through our annual Distribution Network Options Assessment (NOA), and are committed to the principles of open and transparent procurement, visibility and accessibility

 **Providing a valued and trusted service for our customers and communities**

Developing a flexibility marketplace

DSO and DNO will coordinate activities to ensure assets are operating safely, reliably, efficiently and maintaining supply for consumers at the lowest cost

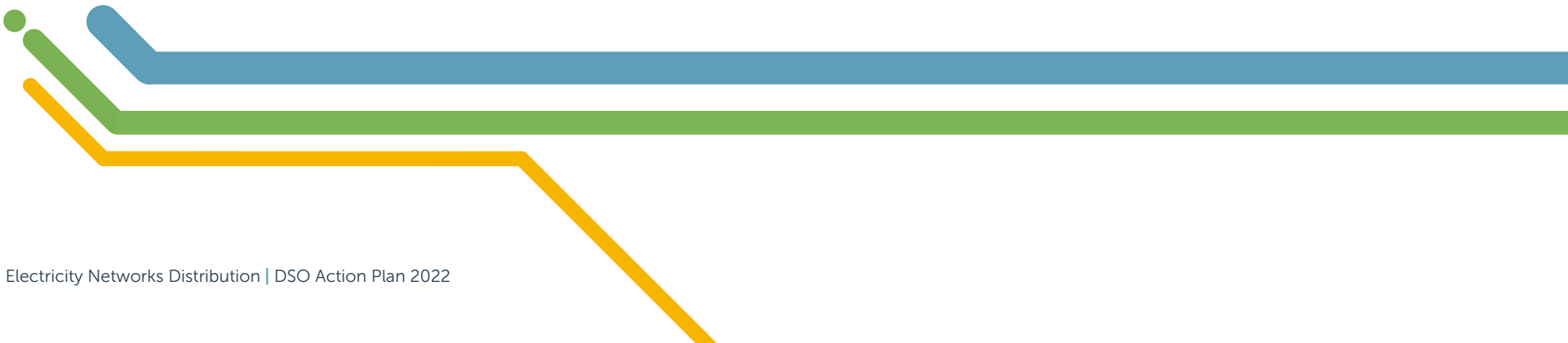
We will highlight flexibility opportunities and provide regular and transparent reporting, including through our published Flexibility Statement, Flexibility Providers Forum and survey. We have adopted common baseline methodologies for flexibility services and the ENA good practice of signposting anticipated procurement requirements for flexibility services. Our planned and current calendar of data-rich publications is on page 16

 **Delivering a safe, resilient and responsive network for all our customers**

Delivering network flexibility

DSO will provide point of connection services, secure flexibility services and drive the development of distributed clean energy resources that will decarbonise our energy supply

We are working with the ESO, other DNOs and the ENA to better facilitate operational data exchange, including improved DER visibility and monitoring, making operational data publicly available, and how we manage dispatch. We are also investigating ways to facilitate local energy trading/exchanging of capacity and curtailment obligations by 2023





Why flexibility first?

Flexibility plays a crucial role in managing network constraints without the need for traditional and costly reinforcement, and is integral to delivering DSO. Our holistic approach takes advantage of all available technologies to optimise our existing network, maximise the opportunity from flexibility contracts and connections, and leverage whole system opportunities before we commit to investing in new network.

Flexible connections have been available to customers in constrained parts of the network since 2011. They allow customers to connect to the grid more quickly at reduced costs, so they can begin trading energy with others or selling back power to the network to meet demand on the system.

Flexibility services allow us to delay investment decisions in reinforcement that would otherwise be necessary to meet demand and reduce the risk of long-life stranded assets (i.e. investing in high costs infrastructure on the basis of a forecast future need, but which isn't certain). We will deliver over £460m of benefits through deferred reinforcement and avoided capital expenditure in ED2. Flexibility can also improve the efficiency of the existing network through increased levels of utilisation, thanks to greater availability of DERs to meet demand at any given time.

Today, customers across our whole network have the option to use flexibility services and are looking for a simpler way to engage in the flexibility market. **The Flexible Power platform** is a direct response that gives flexibility providers access to multiple networks through a single website. The DNOs post flexibility locations, requirement data, procurement notices and relevant documentation as a one-stop-shop for flexibility providers.

DSO is playing a key role in delivering flexibility services

Flexibility services will improve how we manage network faults and outage scenarios, and allow us to defer or more efficiently co-ordinate capital expenditure to keep down customer bills. For example, Constraint Managed Zones (CMZs, figure 4) are areas on the network where we are already using commercial flexibility services from DER, such as community owned wind turbines, solar farms, battery storage, EV smart charging, demand side control of air conditioning and appliances, or back up generation.

We are working with the ENA and other DNOs to ensure customers experience consistency in the process, no matter which network operator they are working with.

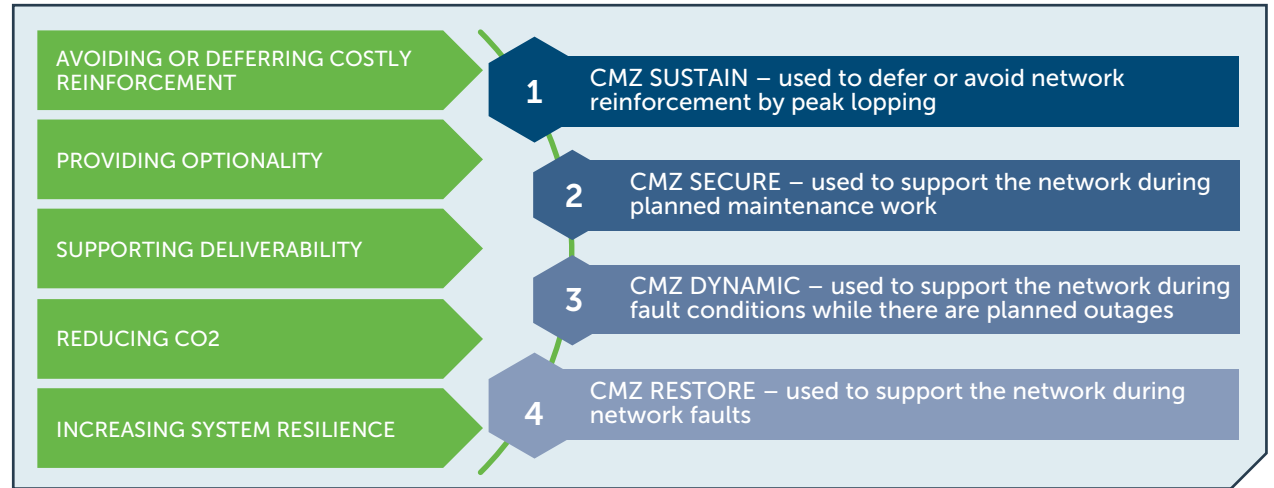


Figure 4: The four standard flexibility services procured by all UK DNOs can lower demand or inject power onto our networks, reducing network loading primarily at peak times or when there is an outage.



SSEN MD Chris Burchell speaking to a COP26 audience in Glasgow, November 2021, about Smart Grids



Designing DSO to support local ambition

Through developing our DSO capabilities to operate at scale, customers will experience the positive impact of increased flexibility used to manage our network: a more reliable, affordable and decarbonised energy system.

Our DSO strategy fully supports local ambitions and the geographical considerations of our two distinct networks.

Through our DFES* we forecast future demand growth and the uptake of LCTs, renewables and other DERs. The forecasts ensure our approach is tailored to individual local communities by reflecting local environmental influences, the existing network infrastructure and societal influences, such as age, employment and economic factors, among others.

For example, Local Area Energy Plans (LAEPs) reflect local policy ambitions, such as the combined approach for Scotland - the Scottish Government's more ambitious (than England's) climate targets for 2030 and net zero. We are working with local authorities and Local Enterprise Partnerships to help inform their net zero strategies and ensure we provide the flexibility and solutions necessary to meet their community ambition.

We are working with the ESO and SHE Transmission to identify parts of our licence areas where solutions on the distribution network can support transmission constraints now and into RIIO-ED2. This is particularly relevant in our Scottish licence area due to existing constraints, the unique topology and the different voltage control boundaries compared to England. We currently operate a number of Load Managed Areas (LMAs), originally introduced to connect large amounts of space and water heating without costly network reinforcement. The transition to net zero means LMAs are no longer a viable long-term solution and in RIIO-ED2 we'll use market flexibility services instead.

**Distribution Future Energy Scenarios are regional scenario forecasts of energy demand up to 2050.*

Supporting whole system solutions

SSEN is in the process of embedding a whole system approach across our entire business that embraces opportunities to collaborate with others to enhance consumer benefits and societal outcomes:

- Increasing the efficiency around delivering services that can lead to savings for customers
- Enabling effective and efficient roll-out of LCTs and avoiding unnecessary customer and societal costs
- Increased system resilience through a more holistic understanding of future impacts and a wider toolset of smart solutions, such as improving in-home energy efficiency to reduce demand
- Developing a better understanding of what our customers and stakeholders need from us
- Improving wider societal outcomes through improved support for our customers beyond net zero

Whole system working presents significant opportunities in RIIO-ED2. For example, flexibility on the electricity system does not have to come solely from electrical solutions. Other vectors could contribute significant benefits to the network, such as district heating schemes, hydrogen networks, energy efficiency, building quality, and integrated transport approaches. On that basis our Flexibility First (page 9) approach is open to whole system flexibility solutions and energy efficiency. In turn, DER on the network may be able to support other vectors with their constraints.

Independent assessment of DSO's role

The International Community for Local Smart Grids (ICLSG), a University of Oxford led initiative that launched during COP26 in October 2021, is a five-year knowledge sharing partnership to unlock a fair, resilient and local transition to net zero that supports communities. SSEN is a founding partner and is now helping to recruit DNOs from around the world to join the partnership, share DSO learnings and feed into the University's research.



**INTERNATIONAL
COMMUNITY
FOR LOCAL
SMART GRIDS**

ICLSG believes the role of DSO is to ensure:

- Local challenges are addressed and opportunities shared in the transition to net zero.
- Real-world learning is shared between DNOs to improve awareness of DSO trials and their impact.
- Policymaking and industry best-practice are informed through learning by doing and disseminating DSO developments.



3 DSO CAN CREATE OPPORTUNITIES FOR EVERYONE

Customers and stakeholders have been clear with their priorities and what they expect from DSO.

Supporting stakeholder opportunities with DSO services

Using our experience from working with stakeholders – including City Councils, County Councils, Community Groups, our Customer Engagement Group, Electricity System Operator, National Government (BEIS), Elexon, Community Energy England - in ED1 trials (see Project LEO, page 14), we have developed a set of stakeholder-aligned scenarios, based on the typical features and needs that different kinds of stakeholders will expect to be fulfilled by DSO. The individuals and locations in the examples below are fictitious, but their circumstances, opportunities and needs are typical of network users across the communities we serve.



Flexibility participants (1):

John's business employs 80 people and is installing batteries of different sizes on both the distribution and transmission networks. John wants his business to support the local economy but also wants to reduce carbon emissions. He wants to expand the business and needs to know where the best opportunities will be and how he can maximise the opportunities to earn the most from the new batteries he wants to install. There's a lot going on around trading flexibility with both the DSOs and ESOs being potential buyers so he really needs to be prepared for the future.



Planning partners:

Cllr. Walker is the Chairman of Shellworth County Council. He wants his Council to make a positive contribution to net zero and is looking to raise the finance for a solar installation with a battery. He is also looking at energy efficiency measures for Shellworth and working with the local social housing provider to support vulnerable householders and improve the housing stock. To help fund this work he wants to sell the energy from the solar installation locally. On top of that, Cllr. Walker is also considering whether to change Council vehicles to electric and install EV charge points.



System and Network Operators:

Anish works in the Energy Systems Operator (ESO). He works in a Control Room team that forward plans what energy flexibility will be necessary to balance the system. To do this he needs to understand what is happening in the distribution network as it may also be procuring flexibility for local needs - he could even be talking to the same service providers as the DNO.



Energy consumers:

Kate invested in solar panels on her property when the Feed in Tariff was at its height. She has since installed a battery to store the power she generates. Kate's employer has recently started to offer electric cars as an option and she'd like to replace her old diesel car with an EV. She has read that she might be able to make money from her new low carbon technology and she keeps getting flyers from local companies saying she could be selling something called 'flexibility services'.



Flexibility participants (2):

Keith operates a manufacturing plant that consumes large amounts of electricity that can vary significantly throughout the day. Shareholders and customers want to see Keith actively supporting the nation's efforts to reach net zero. Someone has told Keith that if he can control electricity consumption through the day he could get paid to do this, even if still using the same amount of electricity. The plant also produces a great deal of wasted heat that Keith's friend has told him could be used to heat local homes.



Commercial businesses:

Claire works for national home builder 'Harvey Homes' as a Utilities Planner. She needs to understand the potential problems for connecting new homes to the grid well in advance. This includes any future constraints there might be. Harvey Homes also work with local authorities and housing associations to improve the energy efficiency of new housing stock available in the social housing sector.



Supply Chain Partners and Innovators:

Yasmin works for ChargeMyEV plc who are installing a network of EV Chargers in local town centres. She is working with her local County Council Transport and Economy Team. They are collaborating to identify where best to locate these so they support the local Transport and Tourism Plan. They are also asking to use Council carparks for Vehicle to Grid. Some of this technology is very new to Yasmin – and parking spaces are already at a premium so using spaces to earn revenue for the Council must be carefully justified.

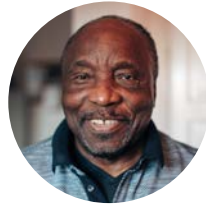


What does DSO mean for you?

By understanding the opportunities that DSO can realise for different types of stakeholder, we can interpret what each function of DSO needs to deliver. The table below lists typical requirements for each stakeholder category across the three core delivery areas of DSO (page 6):



CONSUMERS



FLEXIBILITY PARTICIPANTS



PLANNING PARTNERS



COMMERCIAL BUSINESSES



SYSTEM & NETWORK OPERATORS



SUPPLY CHAIN PARTNERS & INNOVATORS

DSO CORE FUNCTION

FORECASTING AND PLANNING FUTURE NEEDS

A reliable power supply that I can easily connect to my electric vehicle (EV) or other low carbon technology

Visibility of the network to understand future opportunities for flexibility, confidence that decisions on flexibility versus network growth are transparent

To understand future constraints on the network and the bigger whole system picture to align plans and opportunities for EV charging points

To understand future constraints on the network, how constraints may affect a connection and how to participate in flexibility markets to resolve network constraint issues and drive investment

To understand the bigger whole system picture, exchange data and align our plans, and have DSO coordinate with ESO on our behalf

To understand the bigger whole system picture, exchange data and align plans, such as where to locate EV charging points

DEVELOPING A FLEXIBILITY MARKETPLACE

To understand how flexible solutions could help bring my energy bills down and provide opportunities for me to earn money by trading my capacity/energy

Clarity on flexibility procurement, payments and rules, and confidence that I am being treated fairly

To understand how DER assets contribute to net zero and generate income by using flexibility services, and how to finance a flexibility service / flexible connection?

How to earn money through offering flexibility and how do flexibility services provide a cost-effective alternative to reinforcement?

A consistent and coordinated approach across markets; to understand the risk profile and cost impact of flexibility, and how to support those least able to pay for the smart grid

Understand route to market opportunities, how time of use tariffs can be used to help the network, and how to use a third-party platform to sell our flexibility

DELIVERING NETWORK FLEXIBILITY

To understand flexibility and know how and when to trade capacity/energy with somebody else safely

To understand how flexibility is being used, procured and managed to support the network, and how to trade my capacity /energy with somebody else

Clarity around how flexibility is being used, early visibility of any planned constraints or outages, and ability to trade capacity / energy with others

Clarity around how flexibility is being used, early visibility of any planned constraints or outages, and ability to trade capacity / energy with others

To understand the flexibility services connected to the network; access to DSO flexibility planning and timescales, and to avoid conflicts with other network/system operators

To understand how flexibility is being used to support the network and possibilities to improve DSO operational decisions



4 OUR DSO PROGRESS TO DATE

We are already on the journey to transform the network and our projects and collaboration over RIIO-ED1 have delivered significant benefits:

 £60_m in consumer savings	 £251_k operational savings	 2.2_{GW} in pipeline projects
 581_{MW} of flexibility services	 330^{tCO₂} avoided in emissions	 93+ flexible connections

OUR FOUR DSO OBJECTIVES FOR ED1

SUMMARY PERFORMANCE TO DATE

	Demonstrate deployment of flexibility	<ul style="list-style-type: none"> • We have deployed our flexibility first CBA process for reinforcement schemes worth in excess of £1m • We have delivered 581MW of flexibility contracts ensuring they are economically efficient compared to other network alternatives, avoiding over 5,000tCO₂ had traditional alternatives been used. We forecast that the use of flexibility services will avoid or defer in the region of £44m of traditional load investment in ED2
	Provide solutions and develop the capabilities necessary to allow optimal use of flexibility as an alternative to network reinforcement	<ul style="list-style-type: none"> • We have provided 93 flexible connections totalling 412MW to customers who wanted to avoid the cost or time delays associated with reinforcement. This has delivered an additional reduction of 330,000tCO₂ to date • We have combined links to our key network data on a Network Capacity website page where you can access information on the rating and capacity of our network assets
	Develop our models and data to support flexibility across all our networks	<ul style="list-style-type: none"> • We've launched the network digital map which shows our network along with constraints to support those who are looking to offer flexibility to the network. The service lets users view generation availability and contracted demand maps along with EV charger location data. • We have made electric office GIS web available with network ratings to ICPs and iDNOs. GIS provides a cross-technology end-to-end view of the electricity network, combining the fully connected electrical system with Google mapping systems.
	Develop the data sets and portals necessary for stakeholders	<ul style="list-style-type: none"> • We publish all of our live (and previous) calls for flexibility on our website along with headline performance and our plans for the coming year. • Our online Embedded Capacity Register (ECR) provides electricity network stakeholders with accessible information at a local and national level on connected resources and network requirements.



In this final year of ED1 we will add a fifth objective to ensure we are fully aligned with stakeholders requirements from DSO:

Work closely with customer and stakeholder groups to ensure we are able to facilitate their aspirations and reduce the risk of stranded investment in systems and capabilities.



DSO services creating value today

The three case studies below illustrate the benefits of our approach and the value DSO can achieve for stakeholders.



Customers pledged to reduce their energy use at peak times

Helping customers SAVE carbon and costs

The SSEN-led Solent Achieving Value from Efficiency (SAVE) project evaluated the potential for domestic customers to actively participate in improving network resilience to defer the need for traditional reinforcement. Participating customers simply pledged to reduce their electricity consumption at peak time by 10%.

The learning from SAVE is part of the foundation facilitating the transition to DSO, through working more closely with communities and residents to build networks that work for everyone – safe, reliable, low carbon, flexible and affordable.

SAVE has led to contracted flexibility services from community organisations that allow us to delay or prevent expensive and disruptive network reinforcements, improving the capability of the assets we already have to deliver necessary power to customers.

RESOP enables local authority energy planning

The Regional Energy System Optimisation Planning (RESOP) project will support knowledge sharing between network operators and stakeholders in the energy system, and will help the Scottish Government to deliver Scotland’s ambitious decarbonisation targets.

RESOP will deliver whole system growth scenario modelling to understand the impact of local strategies (including from local authorities, developers and other stakeholders) on the energy system, allowing for local communities to have a "greater say" in the development of the energy system and better informed decisions as they plot a course to net zero. Having this whole system view will help ensure communities can achieve their ambitions and economic growth can be delivered in a sustainable manner. Our aim is to identify where and when network investment will be needed to support these local objectives and to understand the impact of stakeholders plans on the energy networks and the role of low carbon technologies in managing the impact.

Through RESOP we have partnered with Dundee City Council to develop a whole system planning tool that will help support Dundee’s net zero target of 2045 and its green economic recovery. The tool will be able to factor in objectives and drivers for local authorities and businesses, such as protecting jobs and re-establishing economic growth, and incorporate them into local plans to assess the implications they may have on the local electricity network. RESOP will also be able to model the likely outcomes of any shifts in future scenarios to help inform local decision making on an ongoing basis.



Dundee is committed to a green economic recovery



Rose Hill Primary School Solar PV array

LEO has tested and validated DSO functions in a real-world setting

Project Local Energy Oxfordshire (LEO), is one of the most wide-ranging, innovative, and holistic smart grid trials ever conducted in the UK. It explores how the growth in small-scale renewables, EVs, battery storage and demand side response can be supported by a local, flexible, and responsive electricity grid, ensuring value for consumers, and opportunities for communities and market providers.

Oxfordshire is planning for rapid growth – 100,000 new homes are planned between 2016 and 2031. The anticipated increase in local electricity demand could lead to restrictions on the network so Project LEO is working to find the best ways to balance supply and demand.

The project’s primary output is an ecosystem for maximising prosperity from local energy systems by developing innovative funding models for new Distributed Energy Resources (DER) and demonstrating novel local energy markets. LEO’s findings will be shared collaboratively across industry, academia and with policy makers and regulators, helping to plot the route to an energy system that supports the UK’s net zero ambitions. Sitting alongside LEO, Project TRANSITION is designing, developing, demonstrating and assessing the common tools, data and system architecture required to develop a "proof of concept" Neutral Market Facilitation Platform that will be scalable and applicable anywhere in the UK.



Performance improvements from day one of RIIO-ED2

Our achievements to date illustrate the enhanced benefits DSO functions will bring for customers and have helped us understand and prepare for the changes necessary to scale up our capability for ED2.

The momentum we have established in RIIO-ED1 will ensure customers and stakeholders will see benefit from the very start of ED2, with:



Improved DSO capability aligned to long-term-planning and forecasting, securing flexibility (whole system and markets), network operation and data provision



Improved visibility of Network Development Plans and forecast information to support local authorities



Our connectivity base system EO in place with our EHV and HV data models available to enable quicker analysis and basic linkage to our Power System Analysis tools, supporting better provision of Points of Connection and constraint data for flexible connections for HV customers and stakeholders



Forecast data using data analytics down to Low Voltage substation for EV to ensure we have sufficient substation capacity for EVs in every community



Improved information and clear “rules of engagement” for flexibility market participants



Improved reliability for customers on problematic parts of the network



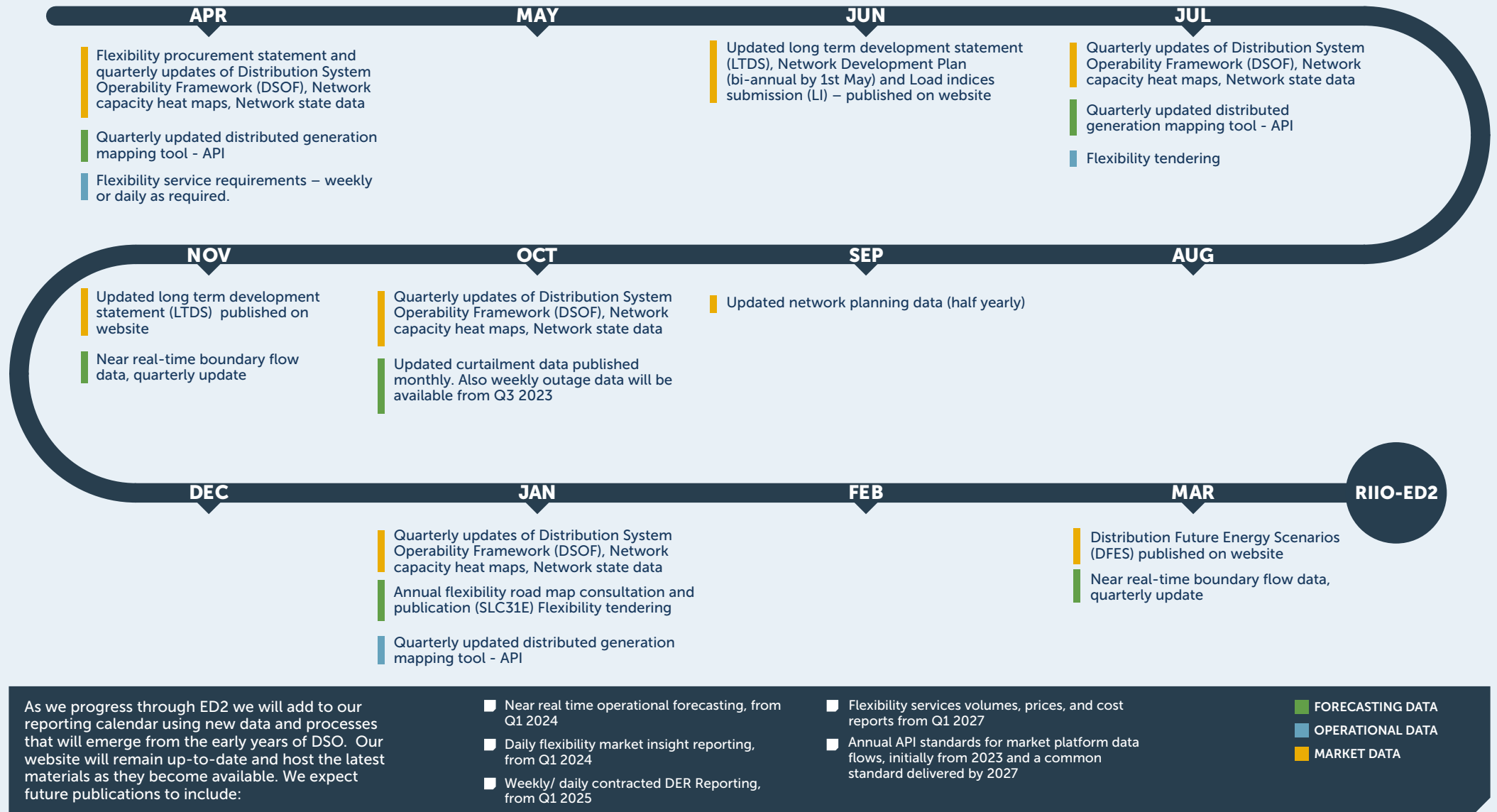
Self-serve EV charger quote fulfilment





Keeping you informed

Stakeholders can already access improved data and forecasting publications and we will add to these from the start of RIIO-ED2 (April 2023), aligned with our licence requirements as a minimum standard. The calendar below lists the types of publication in place for each of the three core delivery areas and their publication frequency.



As we progress through ED2 we will add to our reporting calendar using new data and processes that will emerge from the early years of DSO. Our website will remain up-to-date and host the latest materials as they become available. We expect future publications to include:

- Near real time operational forecasting, from Q1 2024
- Daily flexibility market insight reporting, from Q1 2024
- Weekly/ daily contracted DER Reporting, from Q1 2025
- Flexibility services volumes, prices, and cost reports from Q1 2027
- Annual API standards for market platform data flows, initially from 2023 and a common standard delivered by 2027
- FORECASTING DATA
- OPERATIONAL DATA
- MARKET DATA

Figure 5: Our current monthly releases of data and network intelligence will be further supplemented in ED2, giving customers all the information they need to plan their flexibility opportunities.



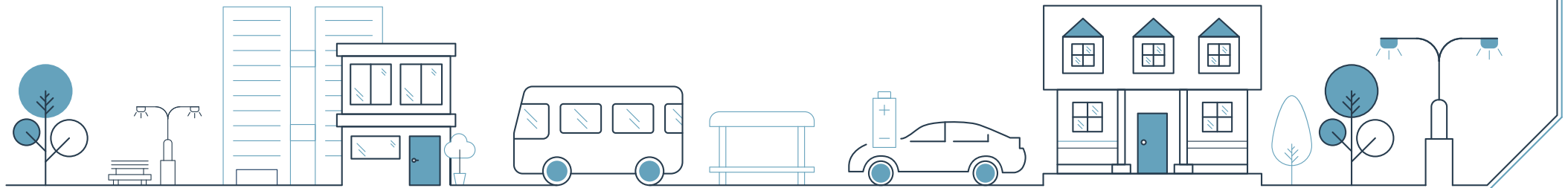
5 OUR DSO ACTION PLAN WITH STAKEHOLDERS AT THE CENTRE

We will develop capabilities, systems and processes over RII0-ED2 to enable scaling up of DSO to deliver net zero. We'll deliver 3.7GW of flexible connection capacity, saving £417million of reinforcement costs, and 5GW of flexibility services through new markets and with new customers.

We have set out our delivery schedule over the first two years of ED2. These initial stages must be in place prior to further delivery in the second half of the price control period. In each case we have shown how delivery supports the three core function areas of DSO, and illustrated customer benefit by providing example journey maps for specific customer categories.

Our investment plan allows us to scale up our delivery as we develop the systems, processes and teams over the five-year delivery period. Our activity on the timeline reflects this resource matching (as indicated on page 19).

Finally, we are developing an online tool for customers and stakeholders to navigate our Action Plan through to the end of ED2 in more detail. We will add more precise details on delivery dates and descriptions over the coming months to reflect final determinations from Ofgem against our ED2 Business Plan and the ongoing evolution of DSO Plans and related thinking from the ENA and our stakeholders.





Delivering DSO services and benefits over 2023 - 2025

		H1 2023/24		H2 2023/4		H1 2024/25		H2 2024/25	
		DSO delivery	Customers benefitting	DSO delivery	Customers benefitting	DSO delivery	Customers benefitting	DSO delivery	Customers benefitting
FORECASTING AND PLANNING FUTURE NEEDS	Continued enhancement of forecasting, simulation and network modelling to deliver resilience now and in the future.	<ul style="list-style-type: none"> Consumers Commercial Businesses Supply Chain Partners & Innovators 	Adding to the availability of published and regularly updated data for customers, using a range of internal and external data sources and direct measurement. Additions to the existing and future state of the network increase visibility of constraints and opportunities.	<ul style="list-style-type: none"> Flexibility Participants Planning Partners Commercial Businesses 	Visibility of the annual audit on our transparent, robust process for evaluating network solutions that includes a 'flexibility first' approach and whole system perspective.	<ul style="list-style-type: none"> Consumers Flexibility Participants Planning Partners 	Providing comprehensive curtailment information along with the range of options for a flexible connection or opportunities for flexibility services at connection.	<ul style="list-style-type: none"> Consumers Flexibility Participants Planning Partners 	
	<p>How we're delivering benefits to customers</p> <p>Customers can be sure of our network "keeping the lights on"</p> <p>Gives customers visibility of the network at all voltages, providing timely, accurate, and accessible data to help customers plan their opportunities or address their challenges.</p> <p>Customers can be confident that the network is making decisions in their best interests.</p> <p>Customers will be able to make informed decisions and assess financial viability relating to different connection options.</p>								
DEVELOPING A FLEXIBILITY MARKETPLACE	Continual improvement of network visibility, including constraints, along with market engagement to drive supplier growth, inform them of the opportunities and tailor the information to their needs.	<ul style="list-style-type: none"> Flexibility Participants Planning Partners Commercial Businesses 	Simple, clear and standardised processes for our flexibility services, with published timelines and outcomes, facilitate our forecast increase in volume.	<ul style="list-style-type: none"> Flexibility Participants Planning Partners Supply Chain Partners & Innovators 	Improving information for LCT connections at lower voltages - expanding our self-service quotations for EVs to heat pumps and rooftop solar and providing clear information on likely curtailment and available connection options.	<ul style="list-style-type: none"> Consumers Planning Partners Supply Chain Partners & Innovators 	Expanding market liquidity through new products and services for both demand and generation, and offering targeted education and support for new participants.	<ul style="list-style-type: none"> Flexibility Participants Planning Partners Commercial Businesses 	
	<p>How we're delivering benefits to customers</p> <p>Helping customers understand, identify and value opportunities to provide flexibility and grow flexibility service providers.</p> <p>Customers can be confident in the process to sign up to provide flexibility services.</p> <p>Customers will know up-front what access they will have to the network, and immediate confirmation relating to connecting an EV.</p> <p>Increasing knowledge levels drives a growth in new entrants and improves the market's liquidity and cost effectiveness.</p>								
DELIVERING NETWORK FLEXIBILITY	Flexibility starting to be used at scale, along with network assets, to maintain high levels of resilience.	<ul style="list-style-type: none"> Consumers Flexibility Participants Planning Partners 	Increased alignment with other network/system operators to deliver a consistent approach to system security, including sharing information on the flexibility we plan to dispatch.	<ul style="list-style-type: none"> Consumers Flexibility Participants System & Network Operators 	Further operational data made available to support network users improving visibility of the network with sight of close to real-time operability constraints.	<ul style="list-style-type: none"> Flexibility Participants Planning Partners System & Network Operators 	Enhanced sharing of real-time data with other network/system operators to help avoid conflicting actions and facilitate stacking of services.	<ul style="list-style-type: none"> Flexibility Participants Supply Chain Partners & Innovators System & Network Operators 	
	<p>How we're delivering benefits to customers</p> <p>Customers can be sure of our network "keeping the lights on"</p> <p>It is clear for customers to know what happens to their flexibility asset in last resort scenarios.</p> <p>Customers can improve their planning by knowing in advance when they might be constrained.</p> <p>Avoiding conflicting actions being taken by other network/system operators.</p>								



Scaling operations to meet demand

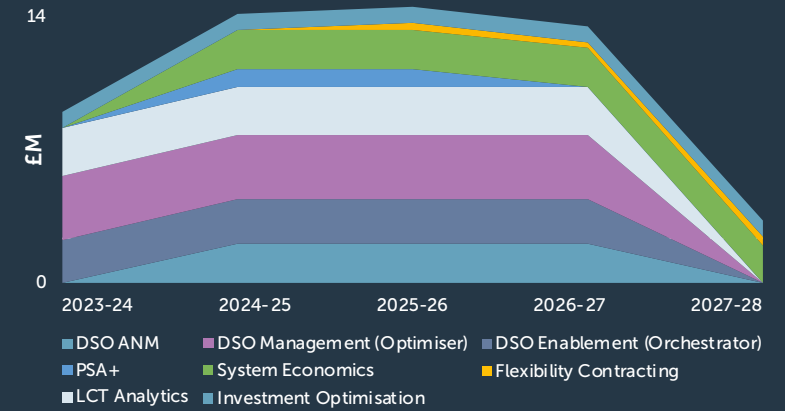
Our investment plan allows us to scale up to develop the systems, processes and teams over the five-year RIIO-ED2 delivery period. The activity on the timeline reflects this resource matching and where we are in the investment cycle.

Note on growth in flexibility services

We are targeting 5GWs of flexible services procured over ED2. We're confident in our forecast over the first three years, while estimates for flexible services in later years may benefit from updates, as growth scenarios are developed or adapted and more information becomes available about future products and technology innovations.

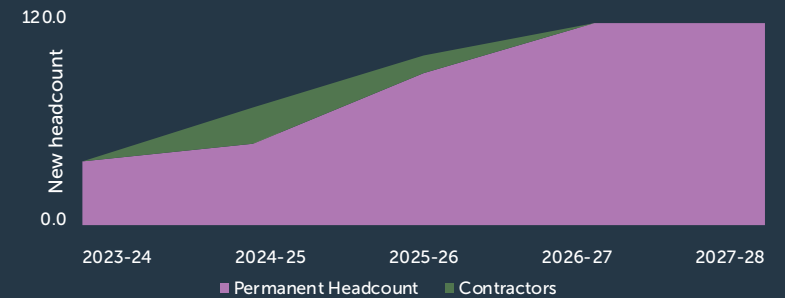


INVESTMENT IN ENABLING IT OVER ED2

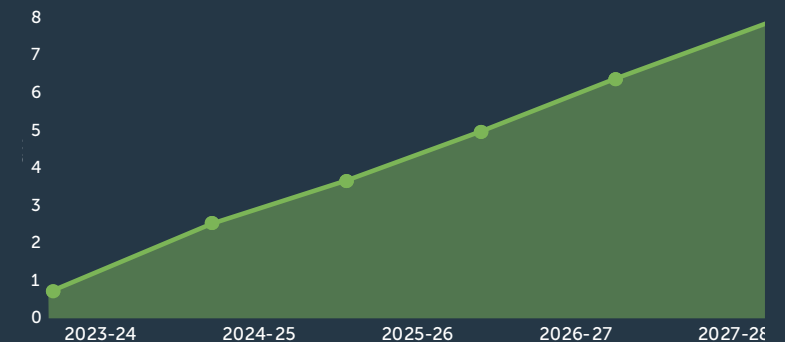


Investment in new digital products tails-off once the new systems are fully functional.

INVESTING £28.2M IN HEADCOUNT GROWTH OVER ED2



GROWTH IN FLEXIBILITY SERVICES





6 DNO AND DSO: TRUSTED INTEGRATION

DSOs will become neutral facilitators of the market without any risks associated with potential conflicts of interest.

DSO functions are primarily accountable for providing efficient capacity to support demand and DER. This is provided through flexibility services, smart use of the existing network, network upgrades and whole system services. Whole system and flexibility solution providers need access to unbiased information on when and where they are required, consistent and competitive markets to operate in and transparent network operation and settlement to be in place. Network customers rely on DSO to select and deliver the most efficient solutions whilst ensuring that electricity supplies are secure and reliable.

The DNO function is accountable for the safety, health, reliability, and resilience of the network at efficient cost. To enable efficient decision-making DSO and DNO functions need access to similar information and be coordinated to avoid duplication of works and ensure efficient delivery. Decisions on capacity affect the health and reliability of the network and delivery priorities and efficiency affect the amount, time and location capacity is available.

It is therefore efficient for DSOs and DNOs to operate as one company, making use of the same systems.

Some parties may be concerned that the DSO aligned with DNO could favour DNO led network investment over flexibility. However, we are already incentivised to take the most cost-effective solution (either flexibility or network) by the regulator, Ofgem. Any savings from our total expenditure are jointly shared by customers and our shareholders, balanced against incentives lost due to any impact on network reliability. Similarly, any savings achieved by standardising systems across the industry are rewarded in the same way. DNO/DSOs are not able to own DER assets (with some special exceptions) so that we remain neutral. DNOs already provide services (without charge) using existing network assets, e.g. dynamic ratings to enable more capacity, switching, and voltage reduction to keep the cost of operating the system low.



Building on a platform of strong governance

Alignment with DNO means our DSO customers also benefit from the breadth and quality of people available to us; the digital and other resources already in place, and clearly defined processes that DSO can adapt. This gives our DSO an inherent agility that can be applied to deliver DSO services and quickly align with customer needs.

We're building on this strong foundation by strengthening measures and adding new ones to demonstrate our commitment to neutrality and give customers the confidence to transact in fair and open flexibility markets.

DSO

DISTRIBUTION SYSTEM OPERATIONS

- Forecasting Network Requirements and Evaluating Network Solutions
- Flexibility (markets)
- Operating Flexibility (Networks Op)

DNO

CUSTOMER

- Customer strategy
- Customer satisfaction

ASSET MANAGEMENT

- DNO Totex Network Investment Plan
- Asset Safety & Health
- Network Reliability
- Design & Client Role

DELIVERY

- Fault Response
- Efficient Delivery
- Outage Management

Support functions

Corporate support functions

Figure 7: While DSO and DNO have clearly defined and separate roles, they benefit from shared structures and cross organisational functions.



Asset management and delivery

There are separation measures already in place to give stakeholders confidence in our DSO structure.

The Asset Management and Delivery functions of SSEN have been in separate Directorates to DSO since 2019 (figure 7), and align with the level of separation in Ofgem's baseline requirements for DSO.

The governance and structures developed with customers and stakeholders already in place (figure 8), will increase the speed at which we can bring flexibility services to market, and the contribution we can make at pace to the UK's net zero ambition.

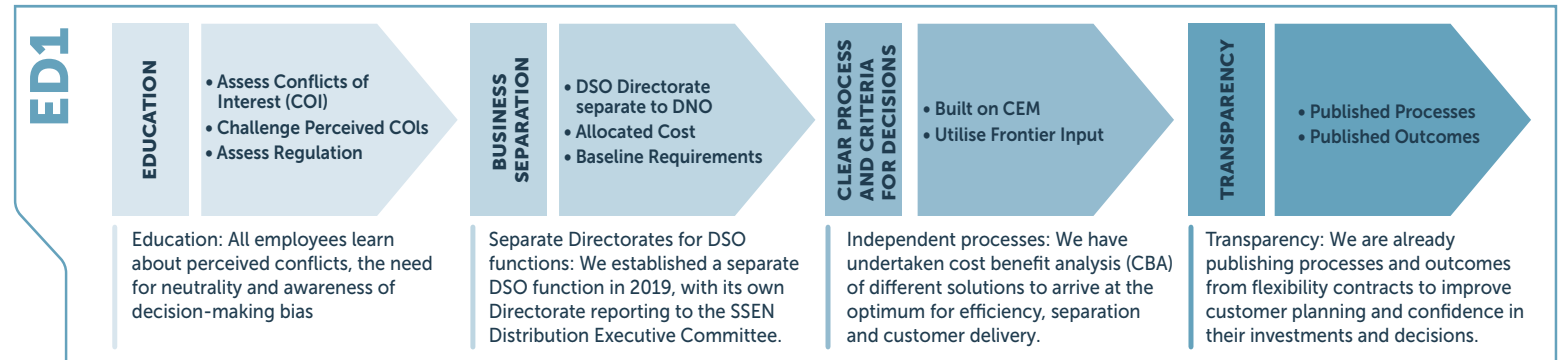


Figure 8: Established governance already in place will support rapid delivery of DSO functions from the start of RIIO-ED2

ED2

AUDIT

- Independent Auditor
- Stakeholder Governance Board

We will add audit functions and a stakeholder governance board for ED2, to provide input on evolving requirements, to review our progress and provide assurance that decisions are being made in the best interests of consumers, customers and net zero.

We have also identified the opportunity to strengthen conflict mitigation measures by separating out flexible (whole system solutions) and traditional network solutions from the team driving the long-term strategy and CBA decisions within DSO.

We have been testing our conflict-of-interest mitigation measures since 2019, including on projects such as LEO (page 14) and have well established DSO interfaces with the DNO Asset Management business.

NERA's view: Legal separation of the DSO would have a negative impact on consumers and jeopardise achieving net zero

Independent analysis from NERA Economic Consulting has looked at the benefits and costs of separate or combined DSO/DNO strategies to best manage perceived conflicts of interest. NERA's report provides evidence that supports a more integrated approach to provide the most benefit at least cost to customers.

The benefits of avoiding conflicts of interest through DSO separation are negligible
If benefits exist associated with avoiding potential asset ownership biases, they would be no more than 1-2% of expenditure

Comparatively the costs of separation are substantial and cannot be avoided
NERA estimates costs of up to £2.8 billion over the period to 2050, or £41 for the typical residential consumer, for the greatest degree of separation

Overall, separation will have a negative impact on consumers
To justify any separation beyond ring-fencing would need cost savings of over 4.2% which NERA deems unlikely based on their analysis

DSO separation would also interfere with achieving net zero
It would absorb substantial time and resources needed to achieve net zero and make transition to net zero more costly

Following ESO legal separation, enduring DSO governance will be examined by Ofgem via a consultation on DSO governance in 2022



Measuring, monitoring progress and effectiveness

We have set out a proposal for the high-level design of our three DSO performance metrics which will allow stakeholders and Ofgem to monitor and evaluate our progress during RIIO-ED2 against our DSO Strategy. These metrics will be built into Ofgem's DSO Output Delivery Incentive (ODI) which, once ratified, will effectively incentivise our performance.



Metric 1

Data accuracy, accessibility and timeliness: we will evaluate our performance in publishing timely, accurate and accessible DSO data.



Metric 2

Facilitating participation: we will measure our success in facilitating participation in the flexibility markets we operate.



Metric 3

Forecasting provision improvement: we will enable stakeholders to measure our improvement in providing forecast information about the flexibility markets we operate.

The performance dashboard on the right is illustrative only. We will listen to customers and stakeholders over the coming months to ensure we report the most relevant performance indicators with the desired frequency. Our dashboard will go live on our website post Ofgem's final determinations on our RIIO-ED2 Business Plan and prior to the start of ED2.

We will confirm the actual metrics used on our dashboard with stakeholders, but among them we expect to see:

- **Annual volume of flexibility procured (MW):**
actual to date vs. ED2 target by product
(N.B. Four products = Sustain, Restore, Secure, Dynamic)
- **Monthly volume of flexibility dispatched (MWh):**
last month and cumulative for all prior ED2 months
- **Annual volume of flexible connections offered (MW):**
actual to date vs. ED2 target
- **Network wide percent of power flows visible to DSO (%):**
total annual actual coverage to date vs. ED2 target
- **Capacity utilised by voltage (%):**
total annual utilisation by year by voltage
(LV, HV, EHV and 132kV; N.B. 132kV is SSEN south only)



Figure 9: The performance dashboard above is illustrative only



Understanding your views

YOUR FEEDBACK

Customer participation in future flexibility services is critical to meeting GB's net zero targets. Our DSO Action Plan sets out the steps we will take towards the decarbonisation of heat, transport and other carbon intensive activities, and how we will ensure inclusiveness, ease of access, affordability, and reliability over RIIO-ED2.

Your feedback will help inform our final activity plan, which will be available and updated on our website over the course of 2022. Please get in touch with any comments relating to any aspect of the plan, or if more convenient, please visit our website¹ and respond to all or any of the questions below:

[Access our online feedback page here](#)



- 1 To what extent do you agree with the content of our Action Plan? Please let us know where you think SSEN could improve?
- 2 To what extent has this document increased your understanding of the opportunities for you enabled by DSO? Please let us know where clarity can be improved?
- 3 To what extent do you feel that SSEN is making progress in meeting the current and future needs of our customers in relation to net zero opportunities?
- 4 To what extent are you satisfied with our approach to DSO and DNO alignment? Do you have any needs or questions that we haven't addressed in our plan?
- 5 How confident are you in SSEN's ability to deliver our commitments and your expectations of DSO in RIIO-ED2 and beyond?



¹ Full website address: www.ssen.co.uk/about-ssen/DSO/is-dso-delivering-your-net-zero



Appendix 1: Our DSO commitments

Ofgem has set out its minimum requirements for DSO which we have responded to in full with 37 commitments, listed below. The commitments in bold are in addition to Ofgem's minimum requirements and reflect additional requests from our stakeholders based on recent engagement.

FORECASTING AND PLANNING FUTURE NEEDS

1. Develop enhanced forecasting, simulation and network modelling capabilities to meet stakeholder needs and deliver a resilient network
2. Improve the provision of forecasting information to stakeholders
3. Use a range of internal and external data sources and direct measurement to provide visibility of the network at all voltages
4. Publish both existing and future constraints on the network
5. Exchange data with other energy vectors and planning partners to support local area energy plans
6. Publish timely, accurate, and accessible data and share network planning information with other licensees and network users
7. Operate a transparent, robust and auditable process for evaluating network solutions that includes a 'flexibility first' approach and whole system perspective
- 8. Strive to ensure nobody is left behind and everyone can participate**
- 9. Take an holistic approach to connections that accommodates the flexibility market**

DELIVERING NETWORK FLEXIBILITY

- 10. Being clear on your options at connection, along with any likely curtailment, so you can make an informed decision**
11. Improve visibility of the network and share operability constraints
12. Share data to help avoid conflicting actions being taken by other network/system operators
13. Provide the ESO with information across timescales about the flexibility we are planning to dispatch
14. Work with other network/system operators to create a consistent approach to system security
15. Have a clear and transparent decision-making framework for dispatch that is coordinated with other network/system operators
16. Make operational data available to support network users and inform other relevant stakeholders
17. Align our data with other network/system operators
18. Publish accurate and unbiased information on our dispatch decisions and settle in a timely manner
19. Publish the outcomes of all our flexibility tenders

DEVELOPING A FLEXIBILITY MARKETPLACE

- 20. Support self-service quotations that offer customers an immediate decision on costs and time to connect**
21. Gather and publish information on the characteristics and parameters of flexibility opportunities to provide flexibility connected to our network
22. Have a clear approach to the treatment of flexibility in last resort scenarios
23. Enable secondary trading of capacity, constraints and energy
24. Engage with market participants to inform them of the opportunities, tailoring the information to reflect their requirements
25. Work with stakeholders to publish data that helps market participants identify and value
- 26. Look to increase market participation at all levels (and for both demand and generation) offering education and support**
27. Have clear and standardised processes in place for developing and amending flexibility products
28. Have simple, clear and standardised processes in place for participation in our flexibility services with published timelines and outcomes
- 29. Have a clear and consistent policy on charging arrangements**
30. Work with third-parties to improve access to the market
- 31. Work with suppliers to maximise the effectiveness of Time of Use tariffs**
- 32. Work with aggregators to ensure assets can support the market**
33. Be clear about network requirements at the outset and identify a mix of short and long-term contracts to reflect network need
34. Have clear, comprehensive and transparent mechanisms and commercial structures for coordinating flexibility procurement with other network/system operators and facilitate stacking
- 35. Provide support and education for new market participants so they can identify and value opportunities and make decisions that support whole system outcomes**
- 36. Offer a range of pricing arrangements in order to stimulate the market**
- 37. Work with suppliers to ensure the efficiency and effectiveness of Low Carbon Technology for all customers including the vulnerable**



Appendix 2: Glossary

Term	Definition
Aggregators	A new type of energy service provider which can increase or moderate the electricity consumption of a group of consumers according to total electricity demand on the grid.
CEG	Customer Engagement Group
CMZ	Constraint Managed Zones . These zones make use of technologies providing flexibility to alleviate network constraints, deploying them as an alternative to traditional network reinforcement in the management of peak demand.
Consumer	Energy consumers, meaning wider users of network services including business and domestic customers that pay for their network use through energy bills.
Customer	An individual, business, generator or flexibility service provider that is connected to, or seeks to connect to SSEN's electricity distribution network.
Decarbonisation	Reducing the carbon intensity in terms of emissions per unit of electricity generated.
Data triage	Systematically find issues which should inhibit open data, identify the 'least impact' mitigation technique(s) and make the process transparent
Digital	Describes the dominant use of the latest digital technologies to improve organisational processes, improve interactions between people, organisations and things, or make new business models possible.
Digitalisation	The use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business.
Digital System Map/ Digital Twin	A digital representation of a real world entity or system.
Distributed Energy Resources (DER)	Any resource on the distribution system that produces or stores electricity. This can include distributed generation, storage, heat pumps and electric vehicles as well as other technologies.
Distribution Network Operator (DNO)	The distribution system is a network of wires, transporting electricity from the transmission system or distribution connected generation to domestic, commercial and industrial electricity consumers.
Distribution System Operator (DSO)	Securely operates and develops an active distribution system comprising networks, demand, generation and other flexible distributed energy resources (DER).
DSAP	Digital Strategy and Action Plan

Term	Definition
Ecosystem	Connection of people, processes, companies, data and things that share the use of digital platforms. Participants in an ecosystem interact with each other to create and exchange sustainable value.
RIIO-ED1 and RIIO-ED2	Refers to Ofgem's RIIO-ED1 and RIIO-ED2, which is Ofgem's electricity distribution price control model for network regulation (Revenue = Incentives + Innovation + Outputs)
Electricity System Operator (ESO)	Supply and demand are balanced second by second and in the longer term and that power flows across the network safely and reliably.
EV	Electric Vehicles
Flexr	Flexr is a DNO data provision and standardisation service from ElectraLink that will connect to the data held by all six DNOs and their DER customers.
GIS	Geographic Information System: computer based visualisation of spatial and geographic data.
Long Term Development Statement	A document that sets out the use and likely development of the distribution network and the distribution network operator's plans for modifying the distribution system.
Low Carbon Technologies (LCT)	Processes or technologies that produce power with substantially lower amounts of carbon dioxide emissions than is emitted from conventional fossil fuel power generation.
Low Voltage (LV)	This refers to voltages up to, but not including, 1kV.
Net zero emissions	Any emissions would be balanced by schemes to offset an equivalent amount of greenhouse gases from the atmosphere, such as planting trees or using technology like carbon capture and storage.
Neutral Market Facilitator (NMF)	The Neutral Market Facilitator (NMF) will provide a market for trading the use of Distributed Energy Resources (DERs)
Open Data	Data in a machine readable format that can be freely used, shared and built on by anyone, anywhere, for any purpose.
Platform	Series of cloud based technologies that offer pre configured solutions to common business processes together with a flexible way to extend and build new processes to support your own requirements.
SSEN	Scottish and Southern Electricity Networks
Transmission Owner (TO)	Companies which hold transmission owner licenses.
Vulnerable Consumer	Significantly less able than a typical consumer to protect or represent their own interests; and/or significantly more likely to experience detriment, or for that detriment to be more substantial.

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