SP Energy Networks | DSO

Decision Making Framework – Operations

February 2026

SP Energy Networks | DSO

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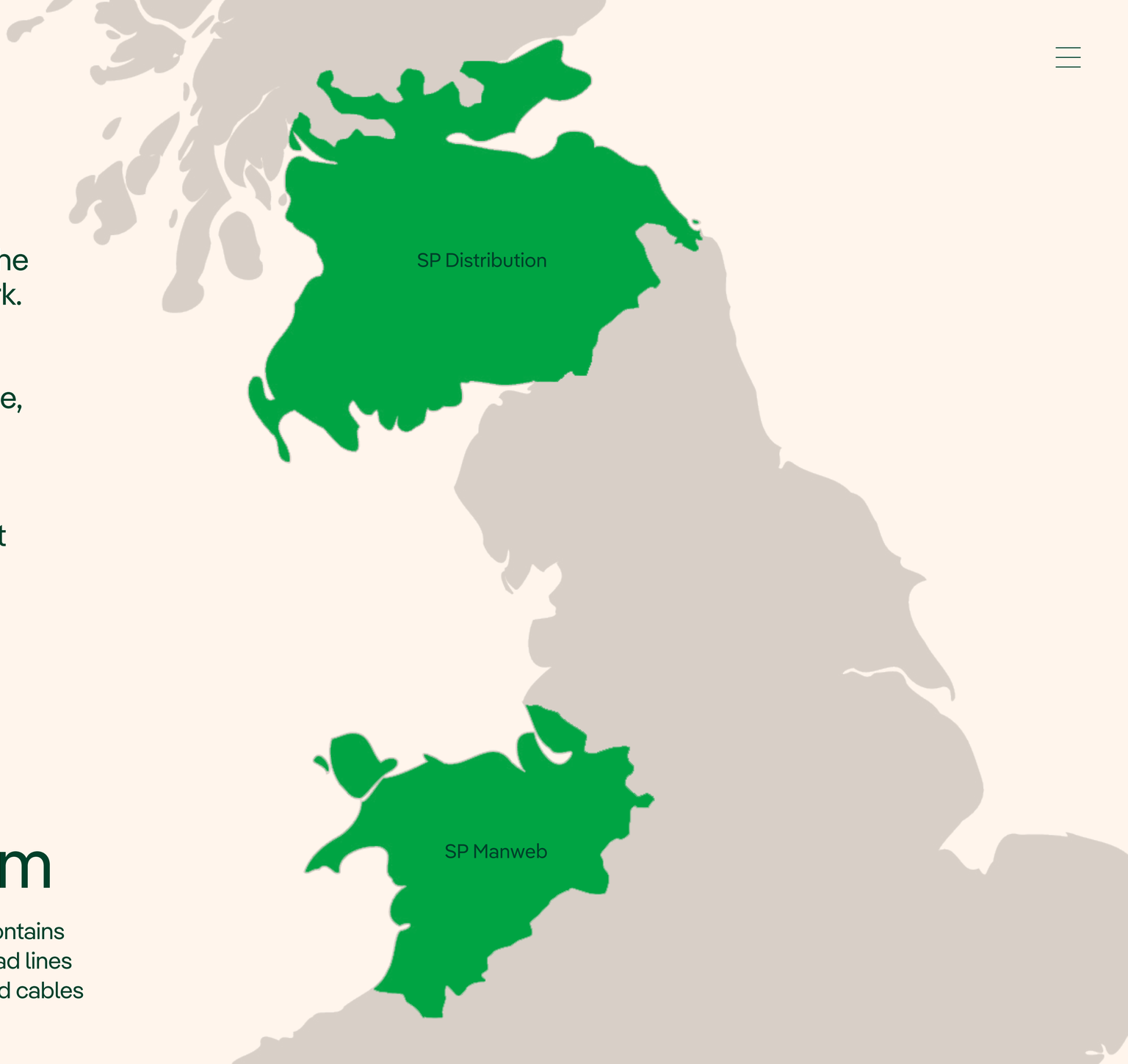
Who we are

We are SP Energy Networks. We have Distribution System Operation (DSO) responsibilities to develop flexibility markets, share data, and support and audit the development and operation of our distribution network.

This network covers Central and Southern Scotland (SP Distribution) and North and Mid-Wales, Merseyside, Cheshire, and North Shropshire (SP Manweb). It's through these two networks of underground cables, overhead lines, and substations that we provide our 3.5 million customers with a safe, reliable, and efficient supply of electricity.



3.5 million

Our distribution network serves 3.5 million business and domestic customers

107,390km

Our distribution network contains 38,145 kilometers of overhead lines and 69,245km of underground cables

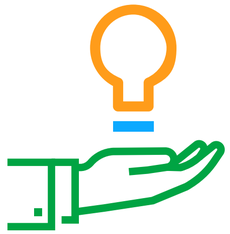
Our DSO Strategy

As part of our transition to a smarter, more flexible energy system, SP Energy Networks DSO is evolving to enhance network efficiency, enable greater customer participation, and support the UK's Net Zero targets. By improving network visibility, optimising the use of distributed energy resources (DER), and fostering market-based flexibility, we are driving a more resilient, reliable, and decarbonised electricity system.

Our DSO Outcomes

We have updated our approach to DSO, building it around four key customer outcomes. These outcomes have been tested with, and are supported by, our stakeholders.

These outcomes ensure our network evolves to meet future energy demands while delivering value, enhancing reliability, and enabling the transition to Net Zero for our customers. They provide a clear framework for how we will operate, engage, and make decisions in a way that supports customers, stakeholders, and the wider energy system.



Enabling capacity for customer connections, growth and decarbonisation #1

Helping customers to participate in a flexible energy system #2

Providing easy access to accurate and timely data #3

Operating a reliable and decarbonised network #4

Building our approach with our stakeholders

Building and delivering our plan for the future is not a journey we can do alone. During the development of our RIIO-ED2 price control, we engaged directly with more customers and stakeholders than at any other time in our history, to best understand their current and future needs, and to make sure the services we develop deliver maximum benefit for them. What is important to our customers and stakeholders is important to us, and their feedback shapes our business decisions.

Engagement is at the heart of our business. We have a mature and proven strategy for effective stakeholder engagement, which is updated annually to continuously improve our approach. It sets out how we engage with a nine-step process, supported by appropriate tools and processes. Our strategy builds on feedback from recognised experts, Ofgem, independent expert consultants, our Independent Net Zero Advisory Council (INZAC), and AccountAbility (the owners of the global standard for stakeholder engagement). Our strategy is a combination of industry best-practice, stakeholder and customer feedback, and years of our own experience delivering high-quality engagement. All of this has combined to deliver an engagement programme that not only aligns with Ofgem's Enhanced Engagement Process, but that seeks to go further than this at all times – to deliver the best outcomes for our stakeholders and the communities we serve.

This Decision Making Framework is built for stakeholders, taking learnings from our stakeholder engagement, and tested with stakeholders and our INZAC in advance of this publication. The purpose of this Decision Making Framework is to help stakeholders understand our decision-making process for using, procuring, and dispatching flexibility services. It's important that this document meets our stakeholders needs – and the intention is to continually challenge ourselves and work with stakeholders to develop future updates to the content and our engagement to meet their evolving needs.

We welcome feedback, comments, and queries on this document. Please send these to:
DSO@spenergynetworks.co.uk

External accreditation

To support our programme of continuous improvement and the development of high-quality stakeholder engagement practices, we enlist AccountAbility, an independent company who own the global standard for stakeholder engagement, to conduct an audit of our engagement strategy and processes.

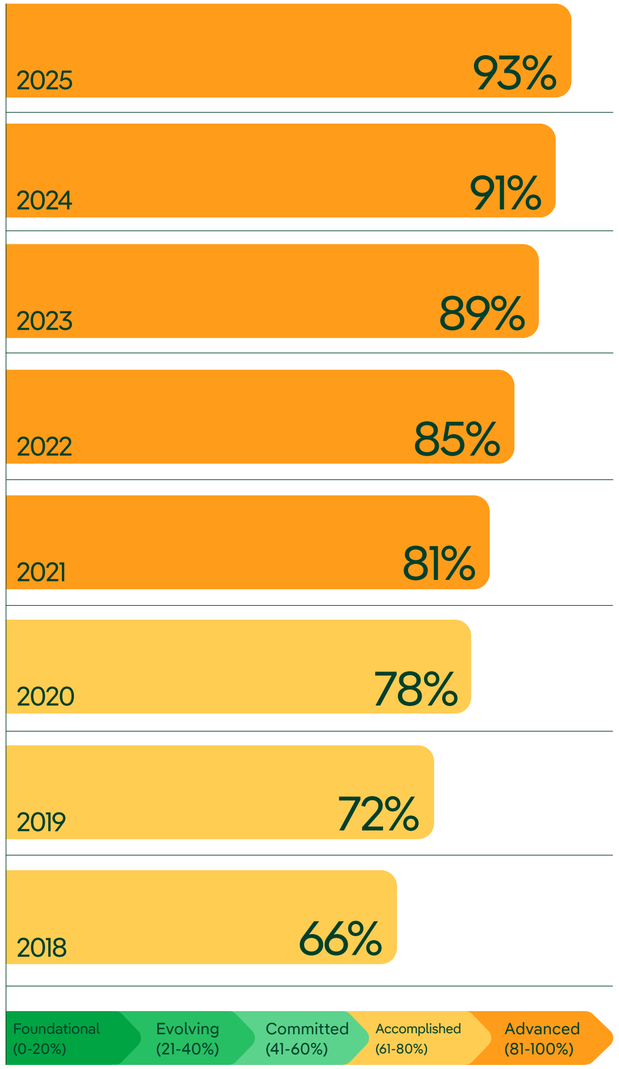
This robust and comprehensive assurance and accreditation programme is aligned to the principles of inclusivity, materiality, responsiveness, and impact against the AA1000SES global standard for stakeholder engagement.

We have once again improved our AccountAbility Health check score in 2024, achieving a 91% rating, one of the highest scores ever achieved globally.

Looking ahead, we remain fully committed to our work with AccountAbility, and have embedded this commitment within our future business plans to ensure we continue to learn from best practice and develop industry-leading engagement with our customers and stakeholders.

93%
Health check rating achieved in 2025

AccountAbility Health Check Progress



This document

One of our key roles is to provide the network capacity our customers need. Looking out over the next two decades, this capacity requirement will significantly increase as our customers adopt electric vehicles and heat pumps, and there's a further leap in renewable generation and storage to power these. We have a range of solutions to provide this capacity, including reinforcement, flexibility services, and innovative solutions.

The purpose of this document is to explain the process we follow to decide when and where to rely on flexibility services to provide this capacity and help manage our network. This document covers the decision made in the planning timescale to utilise flexibility services.

It's important we're transparent around this decision making process. Transparency gives customers and stakeholders confidence that we are using the most appropriate interventions, gives flexibility market participants confidence that we are a neutral market facilitator, and helps address potential conflict of interest concerns.

This document can be read alongside our DNO:DSO Operating Framework. This Decision Making Framework explains the detail of our decision making processes (e.g. the tools and methodologies we use), and the Operating Framework explains how these tasks are split between DNO and DSO teams (their respective responsibilities and interactions).

What are flexibility services?

Flexibility services are when we ask customers to turn up or down their consumption or generation of electricity in return for payment so we can ensure customers have a continuous and reliable electricity supply. For example, electric vehicle owners may be asked to charge at a specific time of day or factories may be asked to operate at a specific time. We also work with generators to use flexibility services as a back-up during works on the network to minimise the risk of power outages for customers.

Such flexibility services have value to us as they help us keep our distribution network within existing network limits, so avoiding capacity constraints. They will play a key role in helping us accommodate Net Zero growth as they can be deployed more quickly than most types of reinforcement and can help manage uncertainty. They provide an agile, smart means of managing our network and can help democratise and bring competition to the energy sector.

Our DSO Market Development function establishes the processes which enable us to contract with Flexibility Service Providers (FSPs). We are increasingly looking for new ways to stimulate the flexibility market, including through changing how we structure contracts, developing new market opportunities in conjunction with our customers and stakeholders, and understanding what data flexibility providers require from us.

Flexibility services provided by distribution-connected FSPs will also be valuable to the National Energy System Operator (NESO) to help keep system frequency within limits and for other system services.

Unless stated otherwise, all references to "demand" and "generation" mean demand, generation, and electricity storage connected to our distribution network, either directly or via an IDNO.

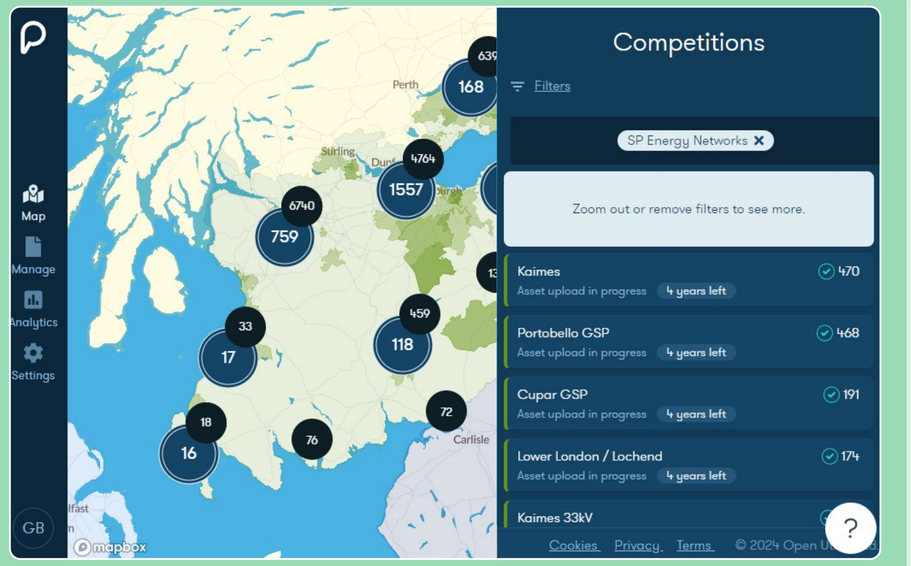
Unless stated otherwise, all references to "FSP" means flexibility service providers connected to our distribution network, either directly or via an IDNO.

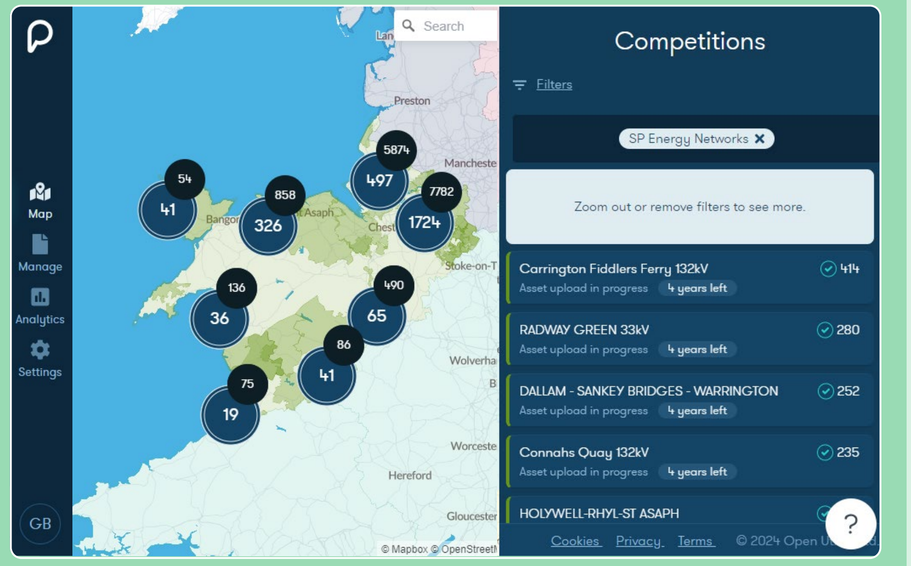
Our Piclo platform

Over the past three years we have contracted with Piclo to develop and implement an end-to-end flexibility service platform, called Piclo Flex. This manages flexibility services from procurement and tender through to dispatch and settlement, and creates a more seamless and simpler process for FSPs. FSPs use the platform to register their assets that provide the flexibility service and to place bids into our flexibility tenders. Piclo's platform has also enabled us to develop our new month-ahead tendering model that was launched in June 2024 and day-ahead model launched in 2026.

We have been monitoring the technical requirements necessary to facilitate short and long-term markets to inform our new platform development requirements for the next few years. Over the last year we undertaken a procurement process for a new platform provider, which has now been implemented and will be live from April 2026. Our aim is to ensure the new platform is implemented with minimal disruption to flexibility services providers and other stakeholders, maintaining continuity and efficiency in our flexibility tender operations and building on the excellent development support we have received from Piclo.

The Piclo Flex platform is free to use for FSPs and can be accessed by registering here.





When we use flexibility services

We use flexibility services to help keep network power flows within network limits and so avoid capacity constraints. We seek to utilise flexibility services where they represent the lowest overall lifecycle cost for GB customers.

In this sense, flexibility services are another tool we have to provide thermal and voltage capacity and we apply the following principles:

- **We will tender for flexibility services for all viable network constraints.** We impartially assess its use compared to other intervention options. We use flexibility services where this assessment process shows it to be the best intervention option.
- **We are neutral as to the source of the flexibility service** (e.g. generation, storage, demand response etc.) providing it meets the requirements of managing the constraint.
- **We are neutral as to whether customers contract directly with us or via an aggregator or supplier**, providing it meets the requirements of managing the constraint and our interface requirements.

There are five main use cases where we will look to use flexibility services:

1. As an **alternative to network reinforcements**, i.e. as a means of providing distribution network capacity. This use case is often referred to as deferring or avoiding reinforcement and has been the primary driver for growing distribution flexibility markets in RIIO-ED2.

2. To **manage uncertainty and create optionality benefit**. We will use flexibility services to help manage the risk of network constraints where there is greater uncertainty around future growth (and so uncertainty around the need for an intervention) and/or where the forecast load marginally exceeds network limits, but where this excess isn't sufficiently material to trigger a more expensive and involved solution. In both cases, the use of flexibility services defers the need to deliver a more enduring solution until there is certainty an enduring solution is needed.

3. To **manage network reinforcement programmes** and **support reinforcement delivery**. This is where we use flexibility services as an interim solution to increase the delivery efficiency of reinforcement programmes. They give us more choice as to when we start reinforcements, so we can better coordinate interventions, 'smooth out' delivery, and accommodate supply chain shortages. This is not the same as using flexibility services for the purpose of deferring reinforcements.

4. To **manage planned** (e.g. maintenance) **and unplanned** (e.g. faults resulting from storms or other incidents) **outages**. We will use flexibility services to support the network when planned outages could put the network at increased risk, especially if a fault should occur at the same time. In areas of the network that could be at risk should a network event such as a fault occur, we will contract with FSPs to be available and ready for dispatch. We will use flexibility services to help us restore the network following an exceptional network event, such as a storm.

5. To **provide wider network capacity** to accommodate new connections where it is appropriate to do so and manage curtailment limits for larger curtailable connections. Flexibility services may be used as an enduring solution or as an interim solution whilst reinforcement is delivered, enabling quicker connections.

Flexibility services vs flexible connections and ANM

Our use of flexibility services to keep network power flows within limits can get confused with individual customer flexible connection arrangements.

A flexible connection arrangement is where a customer has chosen a 'non-firm' curtailable connection arrangement at the point of asking us for a connection. Customers usually choose these where they provide a quicker and lower cost connection.

Under this curtailable connection arrangement, the customer's network import/export access is reduced during certain periods of insufficient network capacity. The distribution constraint scenarios that trigger this reduction will have been identified through network modelling and are specifically linked to the contribution from that customer's connection, and are set out in the customer's connection agreement.

We cannot routinely reduce the customer's network access for any other reason, i.e. a customer's access is not reduced to manage wider distribution network constraints for which they are not attributable. Customers with curtailable connections are not normally compensated for any periods of reduced network access.

Managing curtailable connections can get complex where there are multiple customers with curtailable connection arrangements in an area. Active Network Management (ANM) is one tool/platform that can help us fairly manage curtailable connection customers, and ensure customers are only curtailed in accordance with their connection agreements.

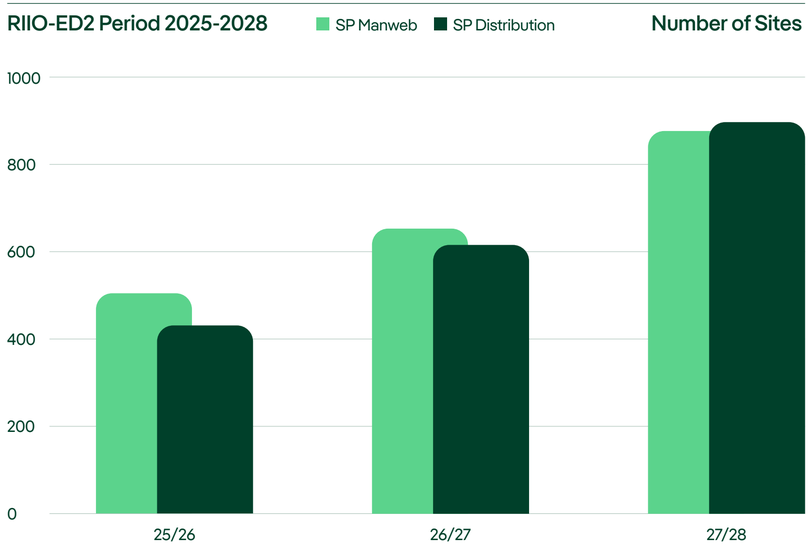
These tools are automated and make the curtailment decisions – there is no real time discretion from DNO personnel to curtail these customers. To improve transparency about the curtailment decisions they make, we are implementing a customer portal. This provides information to ANM customers about every curtailment event they experience, enabling them to audit each curtailment action.

Our track record

Since the publication of our first DSO Vision in 2016, we have been working to support the growth of efficient, coordinated, and competitive flexibility markets. This is important to our customers who wish to participate, to us for accommodating decarbonisation, and to the NESO for maintaining system stability.

In March 2019, we ran our first flexibility service tender which sought 116MVA across just three network groups. From then, we engaged with FSPs, worked with industry, and developed internal modelling capabilities and flexibility market knowledge. The result of this work was that, when creating our RIIO-ED2 Business Plan, we were able to forecast every single likely network capacity constraint that would result across all voltage levels of our network and tender for flexibility services for these. So, from seeking flexibility services for just three network groups in our first tender in 2019, in spring 2021 we were able to tender for 1.4GW of flexibility services across 1,550 sites (including 1,477 LV network sites).

Since 2021, we have continued to tender for flexibility services to fill any gaps at specific locations, identified through our planning and network development activities. However, following stakeholder feedback, we identified several factors affecting potential participation in longer-term tenders, such as exclusivity clauses in other flexibility markets, a preference for shorter-term commitments, and the inability of smaller generators to meet the 0.5MW threshold. In response, we launched our month-ahead market in June 2024, reduced the minimum threshold to 0MW, ensured fairer contract conditions with NESO, and delivered a new Framework Agreement. This monthly tender process allows for agile, real-time tendering, providing more opportunities for FSPs to participate within suitable timeframes. Our use of flexibility services for planned outages has also grown, and whilst to date this has been done bilaterally with larger customers, we will now be including this increasing requirement in our shorter-term tenders.



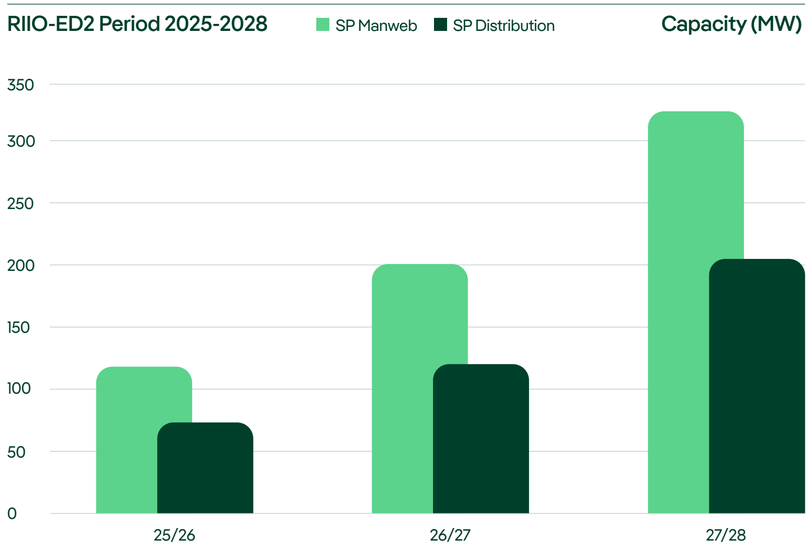


Figure shows the increasing scale of flexibility service capacity required and constraint locations year on year for the remainder of RIIO-ED2.

Leading the way in flexibility market development

We were able to use 550MW of flexibility services across 1,352 sites in this RIIO-ED2 load-related expenditure plan, saving our customers £36m, rising to £145m in our high scenario.

We were among the first to use flexibility services to provide additional network security during planned maintenance outages – providing supply security for our customers during outages, and creating further opportunities for FSPs.

We sought and responded to customer feedback, reducing our service windows from 5 years to 18 months to support FSPs in their service provision, to reduce barriers.

We were the first DNO to tender for reactive power, creating a new service opportunity for FSPs.

We were the first DNO to calculate and send site-specific pricing signals, helping FSPs to understand the opportunity value.

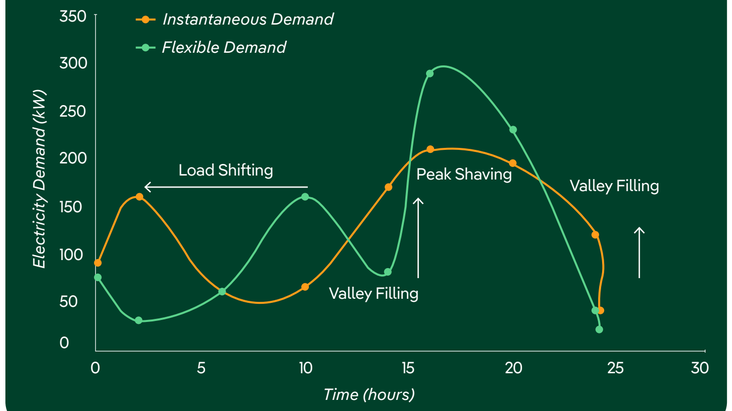
Our industry leading track record – pushing the boundaries

We have developed and actively participated in a range of trials to grow the flexibility market and improve our understanding and capabilities.

Real Time Low Voltage (LV) Flexibility

In 2023, we opened our first LV Support Room, which harnesses a wide range of granular and on-demand data to better manage our LV network. Over the past year, we have built on the previous trial that utilized the data from the LV Support Room to develop, enhance, and refine flexibility opportunities across the LV network. This has now opened up the use of LV flexibility and has provided more tools to manage network constraints, overloads, outages, and faults.

Managing Electricity Demand Through Flexibility



StormFlex – leveraging flexibility during severe weather

In December 2024, Storm Darragh caused significant disruption in mid-Wales, affecting 24,588 customers, including 6,768 on the priority services register. Our flexibility contract with Statkraft allowed our control centre to dispatch 20MW of flexibility, restoring supply to customers ahead of repair time.

That event led to the creation of our StormFlex product which now forms a critical part of our storm planning and preparation across our licence areas.

Day Ahead Markets – Demand Turn-up (DTU)

Driven by strong stakeholder feedback, we launched our Demand Turn-up market to maximise the use of clean, renewable energy. This day ahead market addresses periods of high intermittent generation and low demand, ensuring green energy is not wasted through curtailment across the energy system. Using advanced network digitalisation tools such as PRAE, P4R and NESO forecasting, we tendered three locations, East Kilbride, Livingston, and Glenniston, each with significant curtailable wind generation. Through providers such as Octopus Energy, Shuffle Energy, Ohme, Electric Miles, Equiwatt, Scottish Power, and Connected Response we secured over 50MWhs from a wide range of domestic and commercial assets.

Our decision making process

The primary objective within network operations is to provide our customers with a safe, reliable and efficient supply. We do this through a variety of intervention options such as the deployment of flexibility and active network management to manage the risk of network limits being exceeded and to provide additional security during both planned and unplanned network interruptions such as severe weather events.

Within network operations, actions fall broadly into three groups:

1. Planned in advance with automatic dispatch – for example flexibility associated with network investment. The decision for this is taken at the network planning stage, and the dispatch is actioned through our flexibility platform.
2. Planned in advance with near realtime decision to dispatch – for example StormFlex our flexibility product to support severe weather events. This acts as risk mitigation, with the decision to dispatch being taken by the Control room dependent on network need.
3. Real-time automated decision making – for example our CMZs, where real-time network data is driving pre-determined alogirthmic decision making with curtailment signals being system driven.
4. The process to the right sets out the decision making process for the dispatch of flexibility.

Flexibility Dispatch

Stage 1: Requirements

- Forward outage plan
- Identify operational risk
- Identify flexibility opportunities

We review our network outage forward plan to identify operational risk areas and flexibility opportunities. We also consider network risk areas under severe weather conditions.

Stage 2: Flexibility tendering

- Location and capacity
- Service window (duration and time)
- Service type (pre/post fault)

We tender for flexibility services to confirm their availability and cost.

Stage 3: Dispatch

- Automated for planned
- Control room for unplanned

For planned operational and investment flexibility, dispatch is conducted automatically through the flexibility platform. For unplanned outage support flexibility is dispatched by direct control room to control room communications.

Stage 4: Settlement and review

- Settlement initiated
- Non-response reviewed
- Feedback of learnings

Post event, settlement is initiated for all dispatched flexibility service via the flexibility platform. Non-response adjustments are applied where applicable and lessons shared between DNO and DSO.

How we decide to dispatch flexibility

Stages 1 to 5 describe how we identify the need for flexibility services and then contract them. Once we've contracted a flexibility service, it will be on standby ready for our use. We now need to decide when we need the FSP to deliver the contracted flexibility response, i.e. we need to decide when to use/dispatch it. This dispatch decision is made by our Network Operations team. This section explains how they make that dispatch decision.

Introducing our Network Operations team

Our Network Operations Control Room is responsible for the real time operation of our distribution network. It is their responsibility to manage the network in real time to keep our customers and staff safe, to keep electricity flowing to our customers 24/7, and to ensure that network power flows don't exceed network limits. They do this from our two network control rooms (one for our SP Distribution network and one for our SP Manweb network), which are the heart of our network.

The team owns the dispatch decision for flex as they are responsible for real time network operation. Flexibility services is a key real time operational tool. We dispatch flexibility services only when needed. We usually only know if we need to dispatch close to or in real time.

Timing of dispatch decisions

The timing of when to dispatch flexibility services will depend on the service type and our contract with the FSP, but broadly there are two options:

- Where the need for the flexibility response is predictable then we "schedule" the flexibility response in advance – in effect the dispatch decision is sent in advance of when we need the flexibility response. For example, where we use flexibility services to support the network during a predictable constraint period, we may will schedule the flexibility response a week in advance. This predictability helps FSPs.

- For flexibility services that resolve an unpredictable event (e.g. a network fault), we "dispatch" the flexibility response as soon as possible after the event. Here we rely on our network visibility to alert us that a fault has occurred, and we then dispatch the flexibility response. There are occasions where we schedule a flexibility response months in advance – for example to support the network during planned maintenance outages. As the team plan maintenance outages, they again own the decision to schedule the flexibility response.

Our dispatch principles

We need to ensure that we are operating the network in the most economical and efficient manner. We do this by assessing what flexibility services and other operational solutions are available to us and at what cost. We then select the optimal solution to meet the operational requirement. This is the basis for all our operational and dispatch decisions. We follow the dispatch decision guiding principles published by the ENA Open Networks project shown below.

As we move to shorter-term flexibility service procurement, these decisions will happen closer to real time. We will continue to operate the dispatch of flexibility services in a fair and transparent manner, all the time ensuring that we meet our obligation to maintain a secure and efficient network.

Principle	Description	Implementation
Security	The needs of the system will be met using flexibility in such a way that security is maintained.	DSO/DNO requirements: confirm with applicable standards with an appropriate management of risk.
Cost	Flexibility will be operated to meet system need at the minimum level of cost.	The use of flexibility services should be cost effective and expenditure proportional to the benefits it brings to the network.
Operability	DSOs will seek to dispatch flexibility services that offer compatible levels of operability.	Operability is a measure of how well an offer of a flexibility service meets actual or potential system needs. We will seek to develop an objective and transparent method for assessing operability of offers of flexibility services.
Competitions	DSOs will provide transparency of their dispatch decisions and activities.	We will procure flexibility using simple, fair, and transparent rules and processes. Flexibility services should be developed such that FSP can participate easily in different markets.
Fairness	DSOs will operate a fair dispatch methodology and provide equal opportunities to participate.	Flexibility services shall be assessed and selected impartially purely on their technical and commercial merits. Where multiple technically sufficient flexibility services are available at a comparable cost, we will share the dispatch of flexibility services across these providers.

Coordinating our decisions with the NESO

As customers connected to the distribution network increasingly respond to both distribution and transmission service requirements, we need to ensure that NESO and DSOs co-ordinate. By doing so we can maximise the market opportunities for FSPs, whilst also maintaining network security and facilitating the transition to Net Zero at lowest overall cost to customers.

Coordinating these decisions with the NESO

The main coordination with the NESO needs to come at the point of scheduling/dispatch as that is when the flexibility service will actually be used (and so could result in adverse system impact if not appropriately managed).

However, even at the early network planning stage, we:

- Publish our contracting of flexibility services, both in our tender results and in our Network Development Plan. This informs stakeholders, such as the NESO, of the details of any flexibility services we plan to use.
- Identify where FSPs are committed to offering services to the NESO (FSPs are obliged to tell us), so we can manage any potential conflicts.

If we are to unlock the full benefits of flexibility it is essential that we develop simple but effective processes and systems that allow the NESO and DSO to interact, allowing FSPs to unlock market value whilst maintaining network reliability.

Industry change programmes

Two industry change programmes are supporting improved co-ordination between network operators.

First, the Open Networks project under the ENA has developed use cases and guidance on primacy i.e. under which circumstances does the needs of one network take precedence over another. By establishing the principles of primacy we can ensure that adverse interactions are minimised, allowing FSPs to participate in both NESO and DSO markets. In January 2025, the ENA Primacy Working Group published the Primacy Rules Framework to:

1. identify the NESO and DSO services or 'actions' that may give rise to a conflict;
2. define Primacy rules that can alleviate those conflicts; and
3. carry out a whole system CBA to identify the overall impact of each primacy rule.

This document can be viewed on the ENA website.

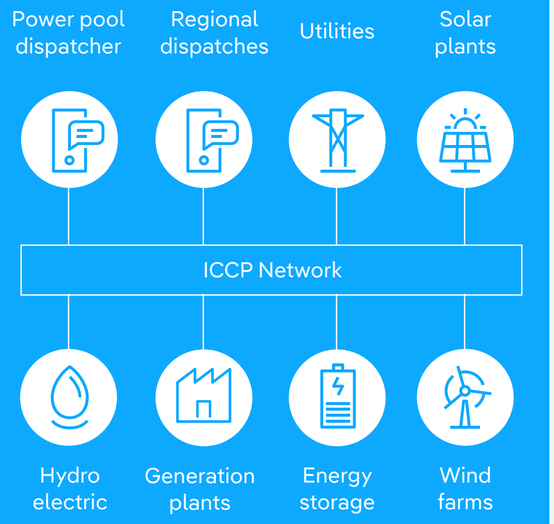
Secondly, Ofgem have now appointed Elexon as the market facilitator for local flexibility, responsible for 'delivering standardised, easily accessible, and transparent DSO markets'. Elexon are also progressing primacy based rules (following on from the work previously undertaken by ENA) via collaboration with NESO and other DSO's. This new industry body will also be responsible for ensuring co-ordination between NESO and DSO markets and is expected to be implemented by late 2025/early 2026.

You can read more about this here.

Technical facilitation

Alongside the need to define how market requirements interact we also need to ensure that the operational coordination and data exchange infrastructure is in place to co-ordinate market and network requirements.

We are investing £0.5m to improve data transfer capabilities between our control room(s) and the NESO control room. We will also improve our network monitoring and modelling capabilities to better understand and communicate the real time availability of our networks, increasing the accuracy of our flexibility service requirements. This will increase the certainty of revenue for FSPs whilst also minimising the cost to our customers.



Collaborative working

We're collaborating with NESO on their MW Dispatch products to improve whole system efficiency and market access. Previously, Constraint Management Zones (CMZs) could limit customer participation. We're integrating our systems to enable coordinated actions, allowing customers with assets located in specific CMZs to participate in both NESO and DSO markets.

Our project, in two phases, expands NESO's MW Dispatch scheme. Phase one opens market access for unrestricted customers, covering over 100MW. Phase two will extend MW Dispatch to customers with restricted network access, seeking to coordinate NESO markets with our own DSO DERMS systems. This collaboration optimises the system by removing market participation barriers and preventing counteracting actions.

More information is available at:
NESO MW Dispatch

What are constraint management zones?

Constraint Management Zones (CMZs) are areas of our distribution network in which we more actively manage network power flows and coordinate our operational actions. They provide the framework DSO architecture to which we can add further functionality as DSO evolves. The first functionality within our CMZ's is Active Network Management (ANM). This is where the network is continuously monitored and ANM-connected customers can be curtailed during times of network capacity constraints.

Customer demand and generation has materially increased over the last decade due to organic growth and decarbonisation. This growth has reduced spare network capacity in many parts of our network to the point where we cannot offer firm connections without first reinforcing the network. To avoid delays, accelerate connections and provide an efficient, economic solution, we use ANM to increasingly offer customers more flexible access arrangements. This also maximises the utilisation of network capacity in that area.

The purpose of the ANM is to manage the risk of network limits being exceeded. It does this by continually monitoring the limits of the network, allocating capacity to ANM-customers based on what's available, and curtailing these customers during times of network capacity constraints. This curtailment lowers the customer's import/export, which reduces network power flows to within existing network limits, preventing excessive overloading on the network.

This curtailment can be a trim mechanism (the customer is still connected but their import/export is reduced to a lower level) or a trip mechanism (the customer site is disconnected from the network). Trim actions are typically taken before trip actions. Where multiple ANM-connected customers contribute to the same network constraint, customers will be curtailed based on agreed principles of access.

Our ANM System

ANM Schemes deployed under the CMZ architecture consist of five main components:

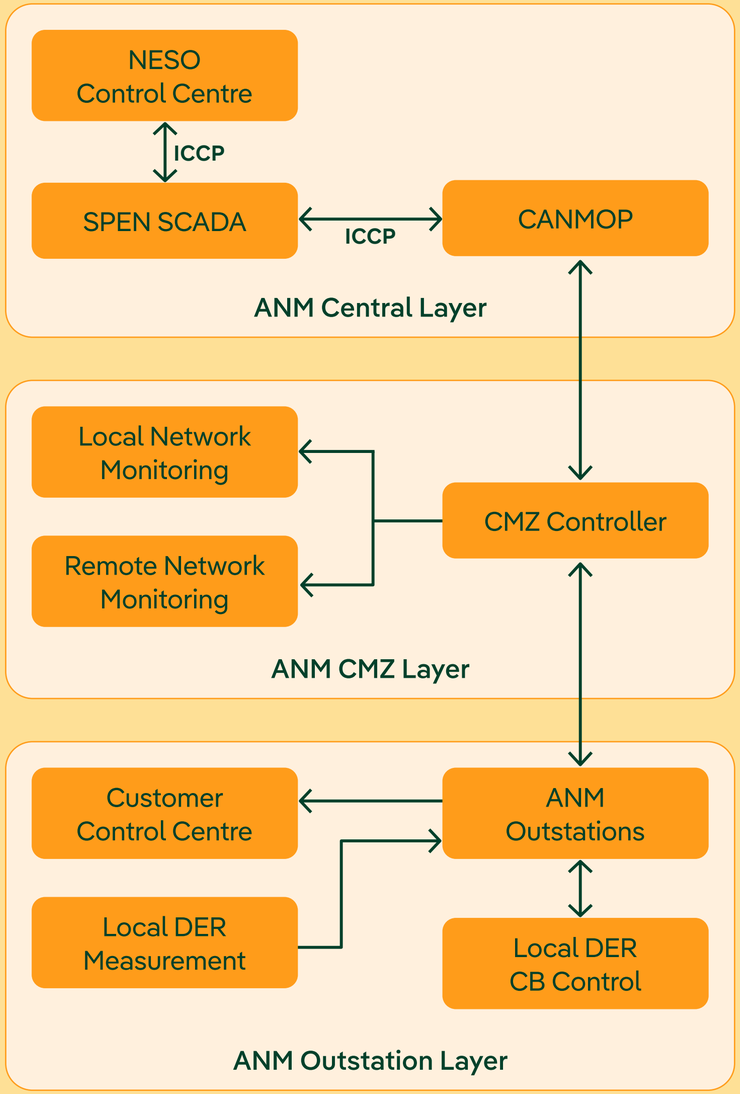
1. The **Centralised ANM Operating Platform (CANMOP)** – This is the central controller for all the ANM CMZs within a licence area. The CANMOP sorts and sends some of the information needed to make decisions to the Local CMZ Controllers. The CANMOP also links to our network control systems in the Control Room to give visibility of actions undertaken on DERs connected to the network.

2. **The CMZ Controller** – Each CMZ has one controller, which is responsible for the ANM Scheme within its CMZ. It combines the data it receives from the CANMOP with local measurement points, and uses this data to determine which ANM customer(s) to curtail and by how much. It then sends curtailment signals to the relevant customers' ANM Outstation.

3. **Customer ANM Outstation** – Each ANM-customer has one of these at their site to communicate with the CMZ Controller. These receive the curtailment signals from the CMZ Controller and enact them by sending instructions to the customer's control system.

4. **Network Measurement Points** – These provide the real time measurements of network power flows, which are sent to the CMZ Controller.

5. **The communication network** – This connects the CANMOP, Local CMZ Controllers, Customer ANM Outstations, and Network Measurement Points together to allow them to interface with each other.



Our decision making process

The primary objective within network operations is to provide our customers with a safe, reliable and efficient supply. We do this through a variety of intervention options such as the deployment of flexibility and active network management to manage the risk of network limits being exceeded and to provide additional security during both planned and unplanned network interruptions such as severe weather events.

For our active network management (ANM) within our constraint management zones (CMZs) the decision making process is full automated, with real-time network data driving pre-determined alogirthmic decision making with curtailment signals subsequently being system driven.

The process to the right sets out the system actions within our CMZs.

Constraint Management Zones

Stage 1: System Visibility

- Customer records
- Control room visibility

We maintain up-to-date records of CMZs, ANM-connected customers and relevant access rights and ensure these are visible to the control room.

Stage 2: System Monitoring

- Real-time data
- Constant monitoring

Real-time data is continually provided to the CMZ Controller and fed into pre-determined algorithms to assess is action is required.

Stage 3: Curtailment Action

- Trim or trip
- Ongoing assessment

The CMZ identifies system conditions that require an intervention and sends a trim or trip instruction to the Customer via the Customer ANM outstation. Further instructions or rest are sent as system conditions change.

Stage 4: Review

- Performance
- Customer agreements

Post event, the system performance is reported and reviewed and any required customer communications, reporting or payments are completed in-line with their connection agreement.

Final stages of governance

The outcome from our optioneering assessments and final intervention decision (pages 14 and 18 respectively) is captured in a technical paper. This must be reviewed and approved by our System Review Group and DSO team before it can progress. The System Review Group is a group of experts from across the business, including Operations, Delivery, Environmental, Network Protection, and Control Room. This process provides the opportunity to review and challenge each scheme from a technical perspective.

Once technical approval has been received, financial approval is then sought. For schemes up to £1m this is made at the Planning Approval Meeting by the relevant Licence Director who will be responsible for delivering the intervention for the cost stated. This meeting is attended by representatives from Financial Control, Engineering, Technical, DSO, and Regulatory Finance, providing the opportunity for the Licence Director to get input from the other departments involved in the project.

Schemes greater than £1m need financial approval from our Investment Review Group. Membership includes the CEO and directors across the organisation.

The roles of the Planning Approval Meeting and the Investment Review Group are to review the investment information provided to raise challenges to satisfy and assure that the proposal being taken forward provides the best possible balance when considering all the factors at play. Only once technical and financial approval at the appropriate level has been received, will the project transition to a technically mature and financially sound programme will be delivered.

Frequency of updates for this Decision Making Framework

There are two ways that updates to this Decision Making Framework will be triggered:

1. **Internal:** we will review this Decision Making Framework at least every two years to identify whether updates are required.
2. **External:** stakeholder input, regulatory changes, or other third-party changes may trigger the need for updates.

In either case, we will inform our DSO Advisory Group of the updates required and discuss their materiality. If updates are agreed to be minor then we will republish the document with an explanation of what has changed. If updates are agreed to be major then we will consult on them.

Changes to this document must be signed off by the Head of DSO.

Ensuring a fair and unbiased process

Separation of process

The roles and responsibilities from the identification of existing or future constraints through to the implementation of a preferred solution are separated across DNO and DSO teams. This split of responsibilities is explained in our DNO:DSO Operating Framework.

The identification and assessment of possible solutions is carried out by our DNO Network Planning and Development team, whilst the procurement of flexibility services is carried out separately by our DSO Flexibility team.

If reinforcement is deemed to be the most cost effective solution, it will be delivered by our Licensed Programmes team(s). On the other hand if flexibility is the most cost effective solution it will ultimately be scheduled and dispatched by our Network Operations Control Room team.

Impartial assessment process

Our assessment criteria is underpinned by data and analytical tools that have no inherent bias in determining a solution. A key feature of these tools is that they can only consider quantifiable information about the constraints and intervention options. This means there is no opportunity to add bias or unjustifiably favour certain intervention options. This should help reassure customers that our assessment process is impartial.

Price control incentivisation

Our impartial and fair network planning assessment process has been endorsed by Ofgem: we followed this same assessment process and used these same tools to produce our RIIO-ED2 investment plan, and we were the DNO with the highest number of approved Engineering Justification Papers (EJPs). This demonstrated that we had an unbiased assessment process that did not discriminate against certain types of interventions.

A further reassurance for customers is that the RIIO mechanism financially incentivises us to choose the best value intervention, regardless of its type. If we were in the habit of unjustifiably favouring certain types of intervention, then we would be financially penalising ourselves.

Our data and information

We are committed to transparency in our end-to-end activities. Publishing our plans, our decisions and our assumptions are central to providing this transparency for our customers and our stakeholders.

We publish an extensive suite of planning and network development information, the same information which is used as the foundation of our analysis across our decision-making framework. This enables our customers and stakeholders to build their plans on the same principles as ours, and to feedback on where our plans are not aligned with their needs and ambitions.

With regards to data on our Network Operations, Distributed Generation Heatmaps have now been available on our SPEN website for over 5 years and have proven a successful resource to our stakeholders to provide an indication of opportunities to connect their generators to the network. We also publish the underlying datasets to our Distributed Generation Heatmaps on our Open Data Portal.

From our Market development activities, we publish information on our flexibility strategy, including our procurement statement and our procurement report, which set out our activities with regards to procuring and tendering for flexibility services. We are also beginning to publish data and information on curtailment and the use of flexibility services.

Prior to publication, all of our datasets are thoroughly risk assessed to determine whether there is any potential for sensitivities to be exposed if published. Where a sensitivity is identified, mitigating actions are implemented, which can mean that sometimes we publish our datasets in a password protected area under a shared licence.

Dataset	Information	Description
Planning & Network Development information and associated data	Distribution Future Energy Scenarios (DFES)	Provide users with geographically granular forecasts out to 2050, covering changes to our distribution networks out to 2050 as a result of GB's transition to Net Zero.
	Long Term Development Statement (LTDS)	Provides users with details of electrical and location data for assets and their network configuration. And an understanding of network limitations, capacities and an indication of planned works.
	Network Development Plan (NDP)	Explains how we plan to deliver the capacity our customers need to decarbonise and sets out where our network has capacity headroom to accommodate demand and generation growth.
Network Operations information and associated data	Embedded Capacity Register	Provides users with an industry standardised view on connected generation and storage resources as well as network services.
	Generation Heat Maps	Provides users with an overview of headroom available for connecting to our networks, allowing less technical users access to data to inform decisions on where to make connection applications.
Market Development information and associated data	Curtailment	Provides indicative curtailment levels based on generator type, GSP, and region. Users can use the curtailment data to see which site becomes a point causing curtailment.
	Load Related Interventions	Provides a full suite of information on the planned interventions on our network across the five-year price control period, including the evaluation of flexibility.
	Market Prospectus	Provides information on our procurement activities, our tender results and on ongoing approach to developing the markets for flexibility service providers.

Stakeholder Engagement

We also make it easy for our stakeholders to get into contact with us. Whether it is to ask questions on published datasets, or to seek access to data, our dedicated Open Data team are committed to responding to our Stakeholder needs. Stakeholders can get in touch with us via our "feedback form" available on our Open Data Portal or by contacting us directly via our Open Data e-mail address.

We recognise that stakeholder engagement is a two way process, and in addition to responding to our stakeholders on a bilateral basis, we also proactively reach out to our Stakeholder groups to better understand what data will support their areas of interest. Proactive engagement with our stakeholders will continue throughout this price control period and beyond and includes wider opportunities for engagement such as our DSO conferences, which provide stakeholders with the opportunity to engage with us and shape what we are delivering now, and in the future, to meet customers' and stakeholders' changing needs and support Net Zero.

Appendices

Appendix A – Network intervention types

This table shows the range of intervention types we could consider to solve an enduring capacity constraint. They are not mutually exclusive, so can be combined to provide capacity. When considering how to solve a short-term capacity constraint (such as a planned maintenance outage lasting a few days), we would consider flexibility services, network reconfiguration, enhanced asset ratings, or contracting mobile diesel generation. Included the table below are new solutions we've developed through innovation projects, which we're using as business as usual solutions in RIIO-ED2. Building on RIIO-ED1 innovation will save our customers over £80m over RIIO-ED2.

Intervention type	Advantages and disadvantages
Flexibility services – Where customers agree to actively manage their demand/generation to help avoid constraints.	✓ Can help defer or avoid reinforcements ✓ Encourages competition and the democratisation of the energy system X Not always available as an option X Doesn't help fault level (switchgear) constraints
Energy efficiency – Where customers have agreed to passive measures to manage their demand to help avoid constraints.	✓ Directly benefits the customer through lower bills ✓ Helps reduce whole system peak, network losses, and the need for generation capacity X Cost effectiveness (MW reduction per £) is lower than other solutions X Doesn't help fault level (switchgear) constraints
Network automation – Where we increase network visibility and control to get more out of existing network capacity.	✓ Lower-cost than network reinforcement ✓ Can facilitate faster customer connections ✓ Can offer a temporary solution to provide some capacity while an asset based solution is delivered ✓ In some cases coordinates across boundaries (such as at the Transmission/Distribution interface) X Can increase network complexity X Typically lower capacity release than network reinforcement
Smart network interventions – Where we look to get more out of existing network capacity	✓ Often lower-cost than network reinforcement ✓ Can have secondary benefits, such as enhancing the effectiveness of other interventions X Can increase network complexity X Typically lower capacity release than network reinforcement
Network reconfiguration – Where we temporarily or permanently adjust the topography of the network to match existing network capacity with customer power flows	✓ A low-cost intervention ✓ Quick to implement X Limited to where there is a low coincidence of customer usage between neighbouring sections of network
Enhanced asset ratings – Where we seek to increase the thermal capacity of individual existing network assets without having to replace them.	✓ Typically a low-cost intervention ✓ Quick to implement X Capacity uplift might only be for short periods X Can increase asset deterioration X Doesn't help switchgear constraints
Network reinforcement – Where we permanently increase network capacity by replacing existing assets or adding more assets – for example, a new substation.	✓ Allows significant customer demand and generation growth by providing substantial additional capacity ✓ Enables customer participation in wider market opportunities by providing unconstrained access on an enduring basis ✓ Can improve asset health and reliability X Can take a long time to deliver, especially if planning permission is needed X Potentially higher environmental impact than other interventions

Appendix B – Acronyms and glossary

Term	Description
ANM (Active Network Management)	ANM schemes are monitoring and control platforms which sit above the physical network and reduce network constraints by curtailing the output of ANM-connected customers during times of system constraints.
Customer	Anyone connected to our distribution network and who depends on us for an electricity supply. This includes demand, generation, and electricity storage sites, and Independent DNO (IDNO) networks.
Decarbonisation	The process to reduce carbon dioxide (CO2) and other greenhouse gas emissions. Much of the decarbonisation strategy is based on switching carbon-based energy consumption vectors (e.g. petrol and diesel for transport, and natural gas and oil for heating) to electricity, and then using zero carbon renewable generation to power them.
DER (Distribution Energy Resource)	Any asset connected to the distribution which can provide flexibility services. DER will likely include DG, demand side response, and electricity storage.
DFES (Distribution Future Energy Scenarios)	Detailed forecasts we publish annually for our two distribution networks. They are informed by stakeholder input. They cover a range of demand and generation metrics (e.g. EVs, heat pumps, different generation technologies) out to 2050. They are available at: www.spenergynetworks.co.uk/pages/distribution_future_energy_scenarios.aspx
Distribution network	In England and Wales this is the overhead lines, underground cables and other network infrastructure that operate at 132kV and below; in Scotland it is the network infrastructure that operates at 33kV and below. The distribution network connects final demand customers (such as homes and businesses) with the transmission network and generation assets needed to power them.
DSO (Distribution System Operator)	A network party licenced to deliver the DSO roles, activities, and expectations defined by Ofgem in their RIIO-ED2 Business Plan Guidance (dated September 2021). From the Open Networks project, the definition of DSO is: *"A DSO securely operates and develops an active distribution system comprising networks, demand, generation and other flexible DER. As a neutral facilitator of an open an accessible market, it will enable competitive access to markets and the optimal use of DER on distribution networks to deliver security, sustainability and affordability in the support of whole system optimisation. A DSO enables customers to be both producers and consumers; enabling customer access to networks and accessible markets, customer choice and great customer service."*
EHV (Extra High Voltage)	All distribution voltages greater than 22kV.
EJP (Engineering Justification Paper)	For each major intervention, these capture the intervention options considered and the justification for our proposed solution.

Appendix B – Acronyms and glossary (continued)

Term	Description
ENA (Energy Networks Association)	A gas and electricity networks trade association. They manage the Open Networks project, a key route for increasing flexibility service commonality across DNOs and coordination between transmission and distribution.
ENZ (Engineering Net Zero) Platform	As explained on page 12.
Flexibility	The ability of a customer to change their import/export position in a controlled manner in response to an external signal. With the push towards heat and transport electrification, being able to flexibly utilise demand and generation will help minimise the amount of additional network capacity required, balance the system, and provide system stability – these can all help reduce customer electricity bills. See also 'Flexibility services' and 'Flexibility services provider'.
Flexibility services	Customers can change their import/export position in a controlled manner in response to a signal. This capability can be utilised for the benefit of the network or wider system (e.g. a DER reducing their import to avoid a network constraint). Where we utilise this capability, the DER is providing us with a 'flexibility service'. See also 'Flexibility' and 'Flexibility services provider'.
FSP (Flexibility Service Provider)	A customer who provides 'Flexibility services'. Unless stated otherwise, all references to 'FSP' mean FSPs connected to our distribution network, either directly or via an IDNO.
HV (High Voltage)	All voltages above 1kV up to and including 22kV.
IDNO (Independent Distribution Network Operator)	A party who typically develops, owns, and operates 'last mile' networks (for example, electricity networks on housing or industrial estates). Unlike DNOs, they can develop, own, and operate such networks across GB – they are not limited to a particular licence area.
INZAC (Independent Net Zero Advisory Council)	A group of expert external stakeholders that provide challenge and input to our DSO activities. More information is available at: Independent Net Zero Advisory Council (INZAC) - SP Energy Networks.
LCT (low carbon technology)	The range of customer technologies that are needed to deliver decarbonisation. For example, electric vehicles, hat pumps, storage, and renewable generation.
LV (Low Voltage)	All voltages up to and including 1kV.
MVAr	Mega volt amps (reactive) is a unit of reactive power. It can be useful to help manage network voltage levels.
MW	Megawatt is a unit of power (not energy).

Appendix B – Acronyms and glossary (continued)

Term	Description
NESO (National Energy System Operator)	The company responsible for operating the GB transmission network. It has two main operational roles: balancing the total demand and generation on the system to maintain system frequency at 50Hz, and ensuring transmission power flows remain within transmission network capability and statutory limits.
Net Zero	Means the legislated targets reducing greenhouse gas emissions to Net Zero. For the UK, these are: i. The UK Government has introduced the Climate Change Act 2008 (2050 Target Amendment) Order 2019. This legislation introduces a legally binding target for the UK to have Net Zero greenhouse gas emissions by 2050. The legislation is available at: http://www.legislation.gov.uk/ukpga/2008/27/contents ii. The Scottish Government has introduced the Scottish Climate Change (Emissions Reduction Targets) Act 2019. This legislation introduces a legally binding target for Scotland to have Net Zero greenhouse gas emissions by 2045. The legislation is available at: http://www.legislation.gov.uk/asp/2019/15/contents/enacted iii. The Welsh Government has introduced The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021. This introduces a legally binding target for Wales to have Net Zero greenhouse gas emissions by 2050. The legislation is available at: https://www.legislation.gov.uk/anaw/2016/3/contents
Open Networks	A pan-industry project involving transmission and distribution network companies, the NESO, the ENA, the Department for Energy Security and Net Zero (DESNZ), Ofgem, and other stakeholders. It has done much work developing flexibility services, FSP experience, whole electricity system planning, and distribution to transmission data exchange.
RIIO-ED2	Can mean both the distribution network price control period which runs from 1 April 2023 to 31 March 2028, and the price control mechanism which governs our investment and expenditure.
SP Distribution	The distribution network operator for Central and Southern Scotland, we own and operate the distribution network at 33kV, 11kV and LV into the home.
SP Manweb	The distribution network operator for Merseyside, Cheshire, north Shropshire, and north Wales, we own the distribution network at 132kV, 33kV, 11kV and LV into the home.
Substation	A building or outdoor compound which contains one or more transformers and switchgear protection. The primary purpose of a substation is to change the network power flow from one voltage level to another. In a primary substation the highest voltage is EHV (primary substations are typically 33kV/11kV); in a secondary substation the highest voltage is HV (secondary substations are typically 11kV/LV).
Transmission network	The high voltage electricity network used for the bulk transfer of electrical energy across large distances. The transmission network takes electricity from large generators (e.g. gas, nuclear and offshore wind) to supply large industrial customers and the distribution network.

SP Energy Networks | DSO