SP Energy Networks | DSO

Decision Making Framework

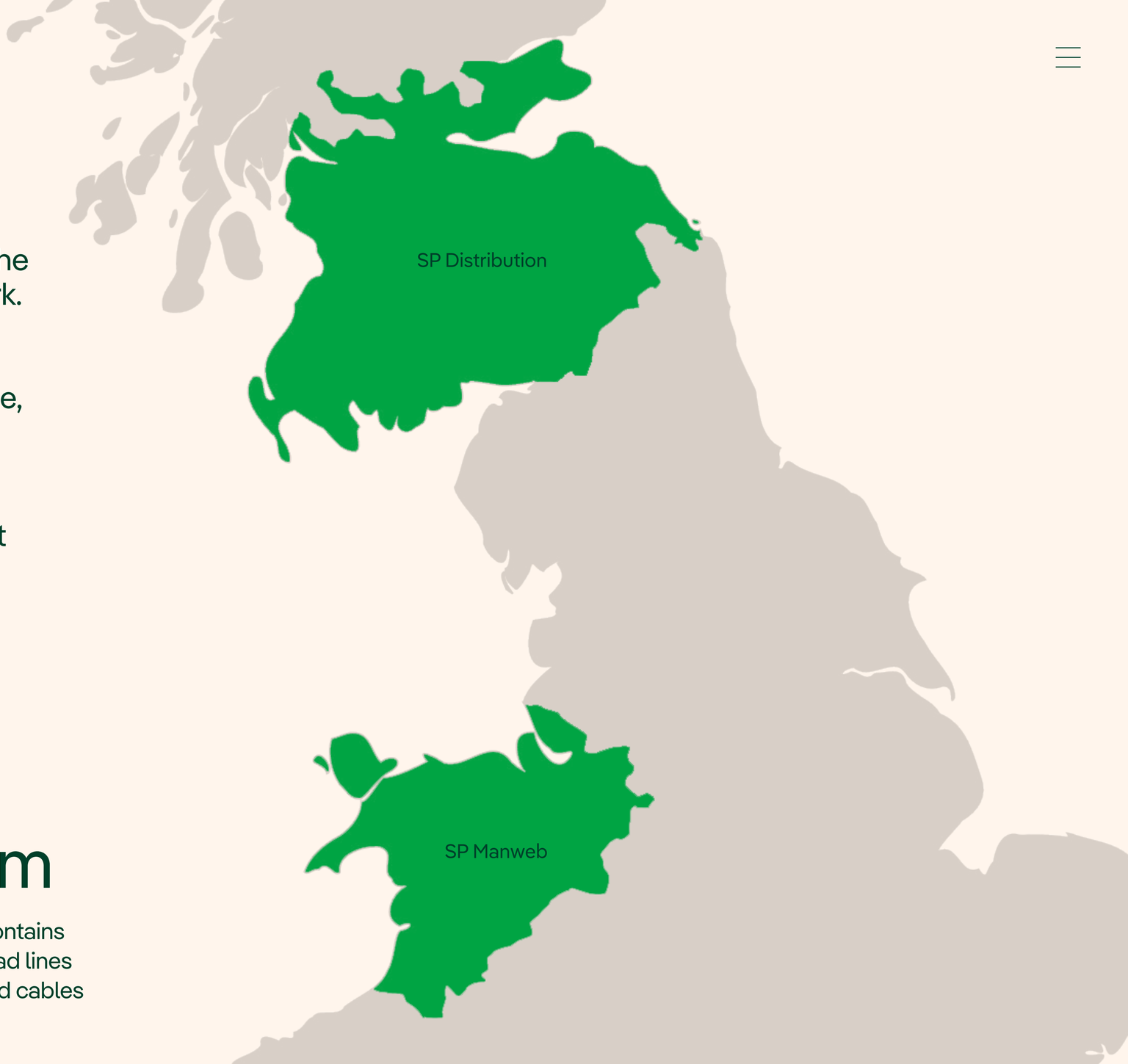
March 2025

Contents

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

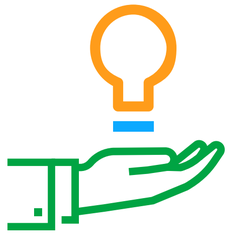
Our DSO Strategy

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.

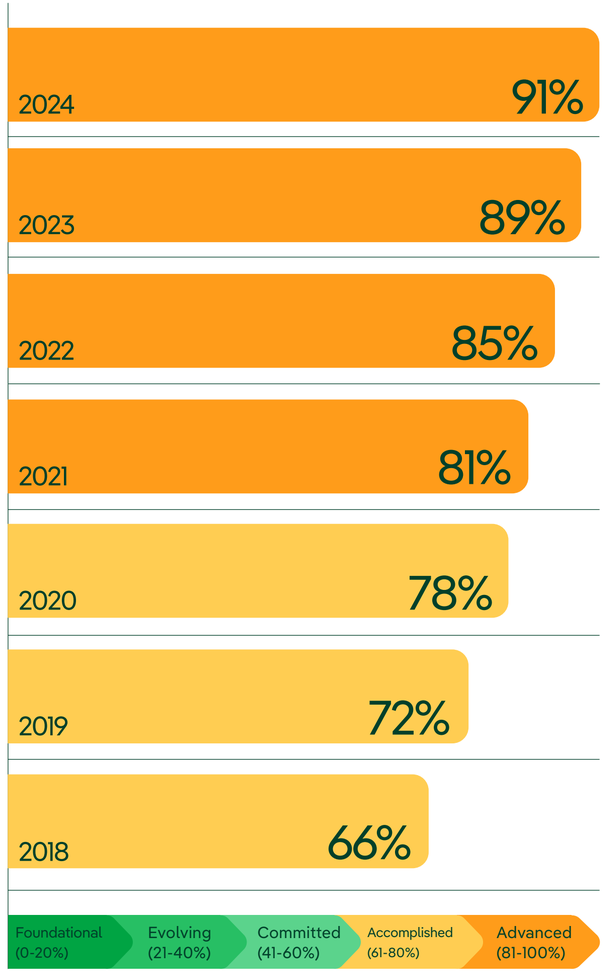
This robust and comprehensive assurance and accreditation programme is aligned to the principles of inclusivity, materiality, responsiveness, and impact against the AA1000SES global standard for stakeholder engagement.

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.

91%
Health check rating achieved in 2024

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. It covers both the decision made in the planning timescale to rely on flexibility services, and the decision made in or near real time to dispatch 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.

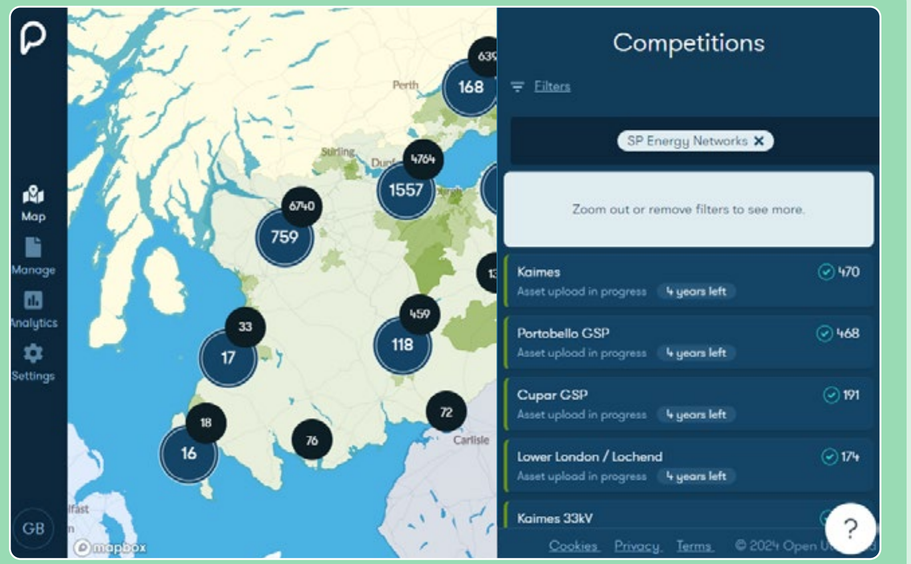
Unless stated otherwise, all references to "FSP" means flexibility service providers connected to our distribution network, either directly or via an IDNO.

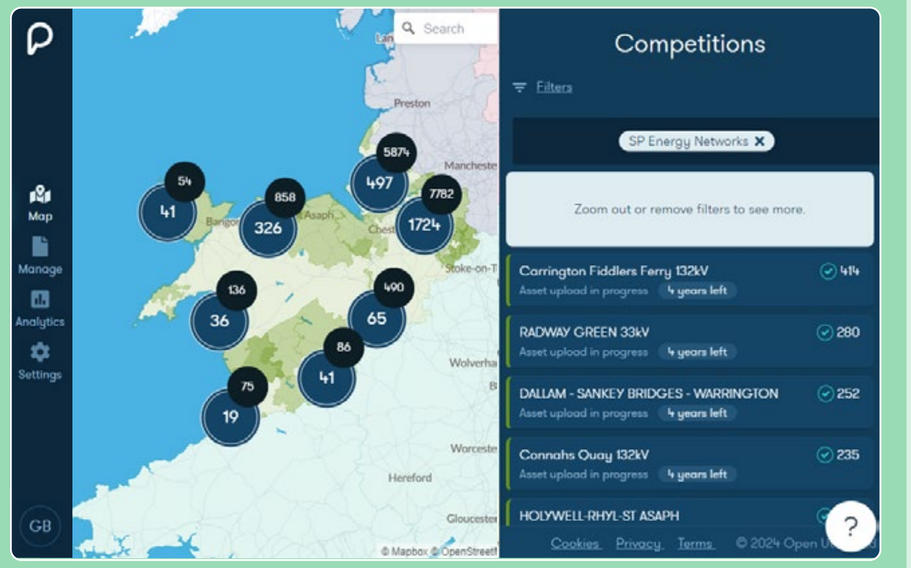
Our Piclo platform

Over the past two 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.

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. We have recently launched the procurement process for a new platform provider, and we are currently in the assessment stage. We aim to award the tender by Q3 2025, with deployment expected within the same year. 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.

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**, 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) **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.

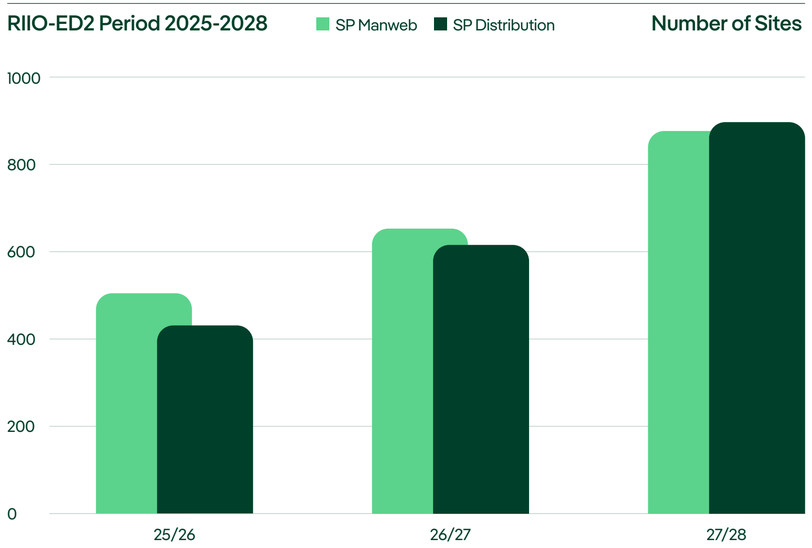
These tools are automated and make the curtailment decisions – there is no real time discretion from DNO personnel to curtail these customers. To improve transparency about the curtailment decisions they make, we are implementing a customer portal. This provides information to ANM customers about every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



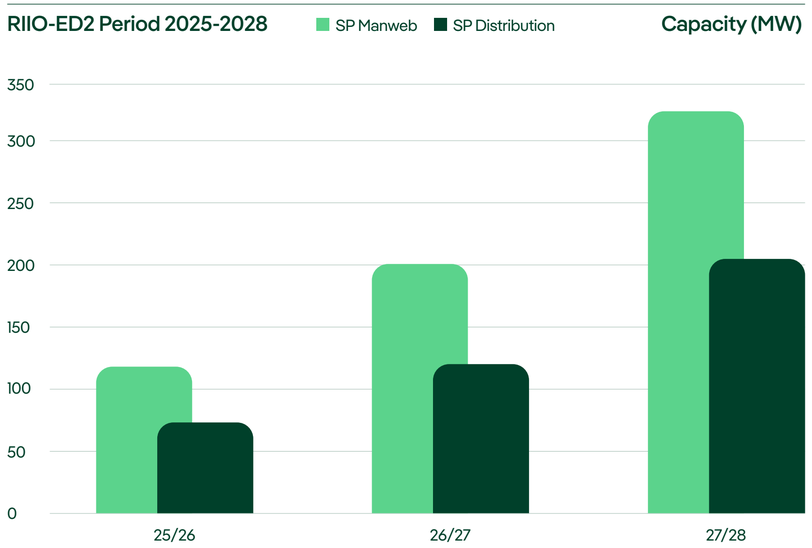


Figure shows the increasing scale of flexibility service capacity required and constraint locations year on year for the remainder of RIIO-ED2.

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.

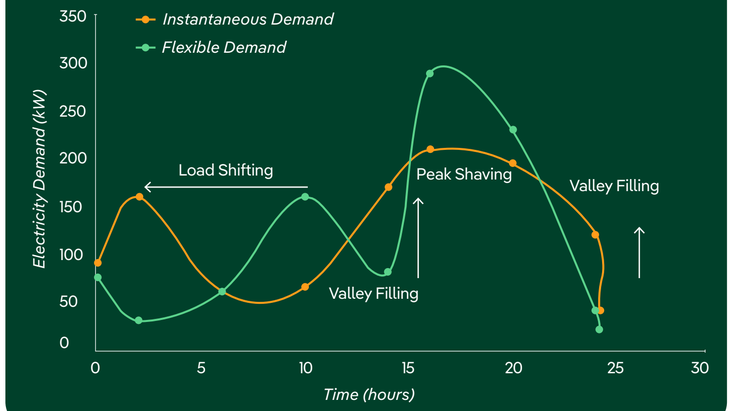
Our track record – industry leading trials

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) Trial

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 challenged ourselves to launch a project that utilizes the data from the LV Support Room to develop, enhance, and refine flexibility opportunities across the LV network. This project also aims to provide the LV Support Room with more tools to manage network constraints, overloads, outages, and faults.

Managing Electricity Demand Through Flexibility



Leveraging flexibility contracts during Storm Darragh

On December 6th 2024, Storm Darragh caused significant disruption in mid-Wales, leading to a complete loss of the Aberystwyth/Rhydlydan 33kV group and affecting 24,588 customers, including 6,768 on the priority services register.

The operational flexibility contract with Statkraft allowed our control centre to dispatch 20MW of flexibility, ensuring vulnerable customers remained on supply during the disruption. This coordinated effort enabled the restoration of all customers by midday.

Equiflex SIF Project

We have secured £133,000 from Ofgem's Strategic Innovation Fund to advance the Equiflex project, which aims to address key issues in the electricity network as the UK moves towards Net Zero. Equiflex promotes equal access to flexibility services, helping balance supply and demand by working with users to adjust their electricity usage, storage, or generation. In partnership with Frazer-Nash Consulting Ltd, Energy Action Scotland, and East Ayrshire Council, Equiflex will explore flexibility options, identify barriers, and develop a toolkit to help stakeholders participate in the flexibility market, ensuring equal access to potential savings.

Our decision making process

The primary role of our network planning function is to provide the distribution network capacity our customers need in a safe, efficient, and timely manner. The capacity customers need is forecast to materially increase over the coming years as they electrify their transport and heating as they decarbonise to Net Zero. Forecasts and modelling show that, in many areas of the network, the existing network capacity is insufficient to accommodate this growth.

We have a range of intervention options which can help us provide more capacity, including flexibility services, smart solutions, and network reinforcement. For every location where there will be insufficient network capacity to meet customer needs, we have a decision to make – how should we best intervene to provide the capacity? We use the following process on the right to establish where, when, and how we should provide capacity.

Each of these five stages are explained in more detail in the following pages 11–18. This process is done my a mix of DNO and DSO personnel depending on the stage. Please see our DNO:DSO Operating Framework for information on respective DNO and DSO responsibilities and interactions for delivering this process.

Stage 1: Forecasting

- Granular forecasts to 2050
- Developed with stakeholders
- Demand, generation, and LCTs

We develop our network to accommodate our customers' demand and generation requirements. Therefore, the first stage of network planning is to understand what customer requirements are over the coming decades. We do this using forecasts.

Stage 2: Network assessment

- Whole network review
- Computationally intensive studies
- Identifies location, timing, and magnitude of constraint

We enter the Stage 1 forecasts into an industry-leading model of our network and run analysis. This shows us how the forecast customer growth will impact the network – it shows us where constraints will occur and so where additional network capacity is required. For each constraint, it shows us the location, scenario (i.e. why does it occur/what triggers it), timing, type (e.g. thermal, voltage, fault current), and magnitude (and how this changes over time). This information forms the minimum requirement that any solution(s) must meet.

Stage 3: Options assessment

- Flexibility
- Innovative solutions
- Conventional solutions

For each constraint identified in Stage 2, we impartially assess a long list of solutions against defined criteria to identify the optimal solution (or combination of solutions). Where flexibility services are a technically viable solution (either as part of the solution or the whole solution), we calculate the ceiling price and proceed to a flexibility tender (Stage 4) to confirm their cost and availability. Where flexibility services are not a technically viable solution we go straight to Stage 5.

Stage 4: 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 5: Intervention decision

- Flexibility vs an alternative solution
- Flexibility contracts
- Interactions and optimisations

Where Stage 4 has confirmed the availability of sufficient flexibility services within the ceiling price, then we will proceed with that as the solution and contract these services. Where this has not happened, we need to develop the alternative solution, but we continue to re-tender for flexibility services before commencing delivery to ensure we are using the most efficient intervention.

Stage 1:

Forecasting

Purpose:
Identify the customer demand and generation growth that our network must accommodate.

To efficiently plan and operate our network to accommodate our customers' requirements, we first need to understand what these requirements are. We develop **Distribution Future Energy Scenarios (DFES)** to do this. These are forecasts for a range of customer demand and generation metrics out to 2050. We then supplement these with two enhanced forecasting tools to provide a comprehensive and granular understanding of future customer requirements.

Why do we forecast so far in the future?
Whilst the RIIO investment cycle is only five years, we forecast customers' needs out to 2050 because some interventions we could use to provide capacity will last for decades. We need to understand both the long and the short term in order to understand which is more efficient. This approach avoids short-sighted investment decisions which could end up costing customers more.

Stage 1 Part a:
DFES forecasting

Our DFES contains our forecasts for how key electricity generation and consumption metrics may evolve in our license areas out to 2050. We update these annually considering a range of sources, including UK and devolved government targets and other industry forecasts.

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

The result is regionally reflective, granular DFES forecasts which support devolved government policies and plans, regional development plans, and include our pipeline of known developments.

Our DFES documents show the Net Zero compliant energy pathways for our region and detail our Baseline forecast scenario. They show how our forecasts compare with the Net Zero compliant energy pathways in the ESO's Future Energy Scenarios, and the Climate Change Committee's 6th Carbon Budget.

Our DFES forecasts show that the scale of the Net Zero transition means **that by 2050** the **peak demand on our distribution networks is forecast to double,** and we will likely see **up-to four-times the current levels of distributed generation** and storage connected to our networks.

Our DFES
For more information on DFES, please see the webite below:
spenergynetworks.co.uk/dfes

Reflecting your views
If you have more information or would like to provide feedback on our DFES please get in touch via the email address below:
dfes@spenergynetworks.co.uk

Stage 1 Part b:
Granular forecasting using EV-Up and Heat-Up

To identify network constraints, we need to understand what is happening at a much more granular level than the DFES. Enhanced forecasting helps us identify precisely where and when we need to invest.

This benefits our customers as we can efficiently target interventions to accommodate requirements, especially important for domestic electric vehicle (EV) chargers and heat pumps, the two main drivers of increasing network demand.

We've developed two enhanced forecasting tools built on successful innovation projects. They're called EV-Up and Heat- Up, and they use spatial, demographic, and socioeconomic data to forecast EV and heat pump uptake for every customer we serve.

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

Off-street parking

- One parking space
- Two parking spaces
- No off-street parking

Demographics and mileage

Stage 2:

Network assessment

Purpose:
Identify where, when, and how much additional network capacity we need to accommodate forecast growth.

We need to assess the ability of the network to accommodate forecast customer growth. Where it can't, we need to identify where and when we need additional network capacity.

To do this, we first collate information about current and future demand and generation. We know existing network demand, generation, and power flows from our network monitoring and data records. Stage 1 gives us granular forecasts about where and when future demand will grow on our networks, and analysis of connection applications and offers give us good information about when and where future generation will arise. Together, these give a complete picture of current and future demand and generation.

Why do we assess multiple customer growth scenarios?
Stage 1 identifies baseline, low, and high growth scenarios. Modelling all three helps us:

- Identify sensitivities that may need further investigation.
- Prioritise interventions – constraints that appear in all scenarios are usually those that are closest to manifesting.
- The highest impact scenario represents our upper case. This helps us understand what we need to be prepared to potentially deliver.

We then enter this information into our Engineering Net Zero (ENZ) Platform. This is a complete model of our network, from customers' cut outs up to the transmission network. It allows for complex network planning modelling, simulation, and scenario planning. It's a tool to help us make impartial data-driven investment decisions, and is a significant advancement on previous modelling techniques.

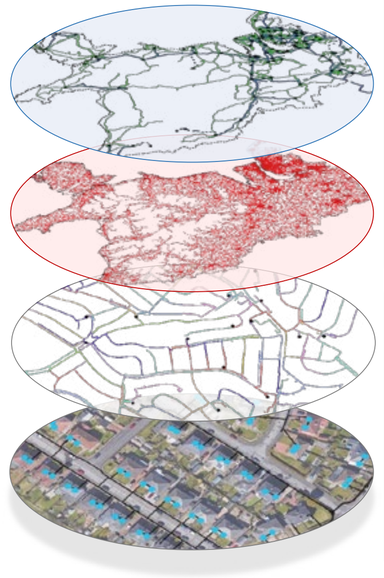
The ENZ Platform runs a comprehensive programme of power flow analysis. This assesses each of the 150,000 circuits and 70,000 substations on our network for every half hour, for every customer growth scenario, for both system intact and fault level conditions. Each model run involves 175,000 iterations per network asset, and takes 20 hours of processing time even on high-powered Microsoft Azure servers.

This process systematically identifies the location, scenario, magnitude (and how this changes over time), type, and timing of every network constraint. This information forms the minimum requirement that any solution(s) must meet. We take this information into Stage 3.

The ENZ Platform also contains a linear optimiser, enabling us to impartially assess optimal solutions – see page 14 for more information.

ENZ Platform:

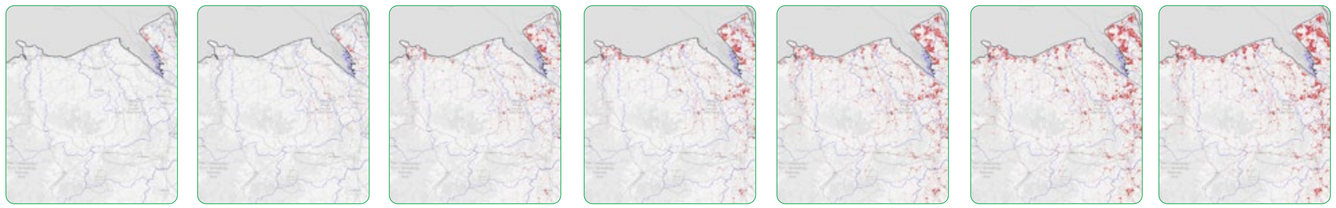
1. Complete network model with asset data



3. Complete network model with asset data

4. Solution optimisation engine

2. Granular property-level forecasting



Stage 3:

Options assessment

Purpose:
Identify where flexibility services are a technically viable solution and calculate the tender ceiling price.

We run the Stage 1 and 2 process annually. For every new constraint identified, we must ascertain three things:

1. Are flexibility services a technically viable solution?
   If yes, then:
2. What is the optimal flexibility solution; and
3. What is the optimal non-flexibility solution?
   This is our alternative and sets the ceiling price.

This is how we do that:

Is flexibility technically viable?

First, we filter out constraints for which flexibility services are not a technically viable solution. For example, it is not technically possible for flexibility services to resolve fault level constraints. We therefore remove these from the flexibility process; solutions to these are developed separately.

Ascertaining the optimal flexibility solution and alternative

For each remaining constraint we then identify two solutions: the optimal flexibility solution and the alternative solution (i.e. the optimal solution if we can't use flexibility services). The optimal flexibility solution could either involve flexibility services being used by themselves or being used in combination with other solutions. We must also identify the cost of the alternative solution.

This optioneering requires us to assess the interventions we can use in combination with, or instead of, flexibility services. These include network reconfiguration, innovative solutions, and reinforcement (see Appendix A) The process to identify the flexibility and alternative solutions is the same: we use the assessment criteria on the right, combined with the tools described on the next page.

Setting the ceiling price for flexibility services

We then use the Common Evaluation Methodology to determine the site-specific flexibility service ceiling price. This is the price beyond which a flexibility service is uneconomical. It is based on the net present value of the alternative solution, the capacity required, and the estimated utilisation. This means the ceiling price will differ for each constraint location.

We have introduced a second filter at this stage: if the ceiling price is below £80-100/MWh, we remove it from the tender, as this is significantly lower than typical market prices. This threshold was developed with stakeholder input to avoid presenting non-viable opportunities to the flexibility market, which could waste FSPs' time and reduce their confidence in these markets.

We regularly monitor the wholesale market price and other flexibility markets to determine if the market price needs adjustment. This ensures we provide the best value to both our customers and the FSPs participating in our flexibility services market.

As well as setting the ceiling price, the alternative solution has a second purpose: it becomes the solution we take forward in the event that the flexibility solution can't be delivered by the market.

Our solution assessment criteria:

Technical

Customer needs
Can it provide the required capacity

Technical requirements
Technically feasible and doesn't introduce other issues

Cost

Whole life cost
Cost benefit considering Capex and Opex

Environmental impact
Losses, noise, visual impact, and carbon impact

Other

Timing/delivery
Can the solution be delivered in time

Whole system
Transmission/distribution and cross vector interactions

1. Does the solution provide the required volume of capacity in the right location? If a solution can't provide sufficient capacity by itself, we will consider whether it can in combination with another solution.

2. Is the solution technically acceptable? Does it comply with technical standards and statutory limits? For example, a solution may provide sufficient capacity, but it would not be an acceptable solution if it causes voltage levels to exceed statutory limits or material risks to supply reliability.

3. What is the whole life cost of the solution? Here we consider both the upfront capital cost (capex) and the ongoing operational cost (opex). The Common Evaluation Methodology Tool can also consider optionality value.

4. What is the solution's environmental impact? Here we consider the solution's impact on network losses, noise, visual impact, and carbon footprint.

5. Is the solution deliverable in the timescales required by customers? For example, a lengthy planning permission process may mean a particular solution cannot be delivered in the timescales required, or may need to be combined with a shorter-term interim solution. We also consider longer-term deliverability issues – we need to avoid creating a future deliverability challenge by deferring too many major investments.

6. Whole systems considerations? Here we consider whether solutions are coordinated from a whole energy system perspective, or whether we need to engage with other stakeholders, for example adjacent DNOs and/or the transmission network operator connected to our distribution network.

Options assessment tools to impartially assess solutions

Assessing potential solutions is often complex due to the numerous variables to consider. For example, how much capacity each solution adds versus how customers' capacity needs vary over time, the lifetime of each solution, and their different capital and operational costs. There are many possible combinations and sequences of interventions for each constraint, from which we need to identify the optimal solution unique to each constraint.

Because of this, we supplement the assessment criteria with design studies, technical assessments, cost benefit analysis for interventions at EHV, and a linear optimiser for LV and HV assessments. These tools are excellent at analysing some assessment criteria, but don't have the ability to assess other criteria such as deliverability. This means we use these tools to support the assessment criteria, rather than instead of them.

A feature of these tools is that they can only consider quantifiable information about the constraints and intervention options. This means there is no opportunity for them to add bias or unjustifiably favour certain intervention options. This should help reassure customers that our assessment process is impartial.

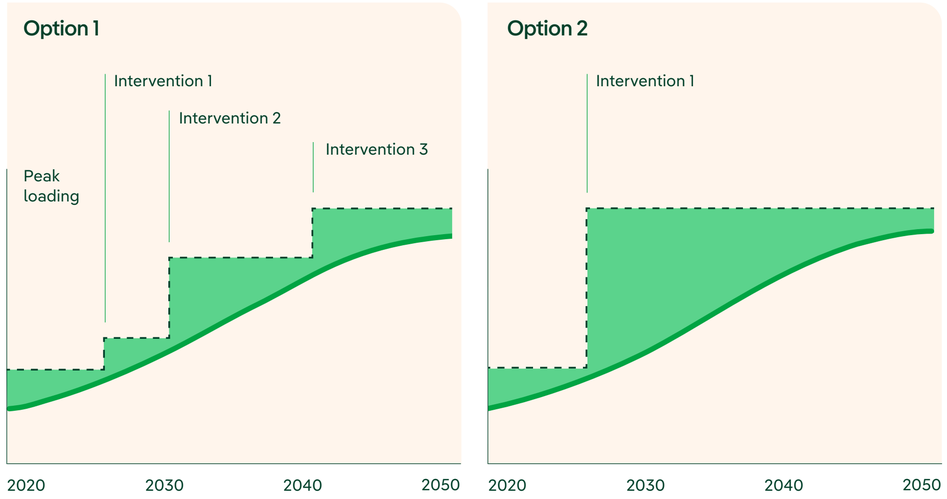
Did you know?
LV (low voltage) is all voltages up to and including 1kV; HV (high voltage) is all voltages above 1kV up to and including 22kV; EHV (extra high voltage) is all distribution voltages greater than 22kV.

Our linear optimiser for HV and LV assessments

For every LV and HV constraint, our ENZ Platform (page 12) determines the most economical combination, sequence, and timing of solutions to meet the required level of network capacity.

It does this by using a mixed-integer linear optimisation engine to assess the range of credible solutions to resolve the constraint (for example, a series of smaller smart and flexibility interventions versus a single larger reinforcement solution) and selects the combination of interventions that minimises net present value over the long-term planning horizon. For example, it can consider flexibility services as an enduring solution by itself, an enduring solution in combination with other enduring solutions, a short-term solution to defer another solution, or a short-term solution in combination with other short-term and long-term solutions – different sequences and combinations are assessed.

The outcome is the identification of the most economical combination and timing of solutions to meet the required level of network capacity – each forecast HV and LV constraint has its own bespoke intervention programme. This is a step change in modelling capability and how intervention decisions are made, and helps ensure that we are making efficient and impartial decisions.

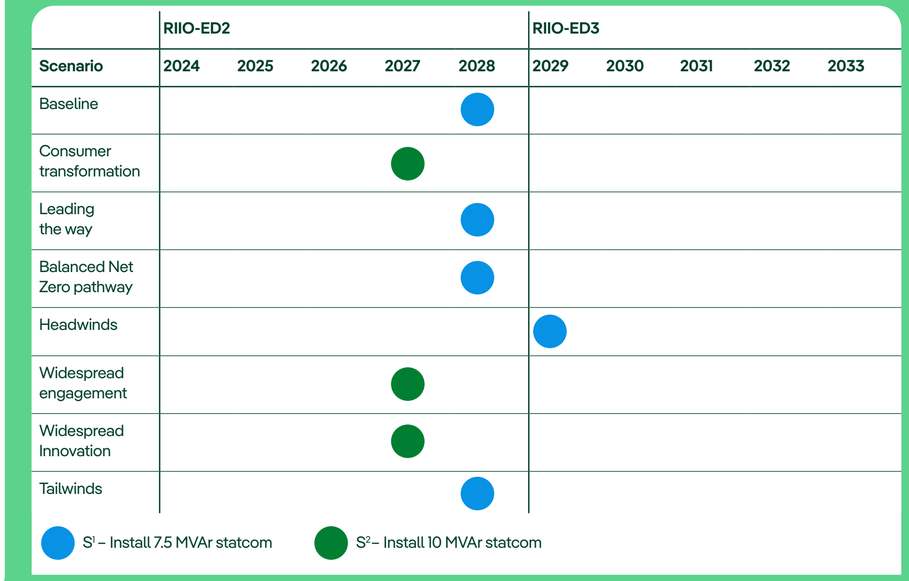


Assessments at EHV and above

There are far fewer constraints at EHV and above and fewer credible solutions (due to tougher planning barriers and fewer options to upgrade or reconfigure existing assets). This means that, rather than use a linear optimiser to assess a large number of variations, we do more in depth design studies to support cost benefit and technical analysis on a smaller number of credible solutions.

For each constraint, we consider how the requirements for the solution change across the low to high growth scenario range. This considers how robust the intervention is across the range of credible Net Zero pathways, and identifies where the scope, magnitude, or timing of the investment is sensitive to the range of future decarbonisation pathways and different levels of demand and generation growth.

The figure below shows an example of optioneering for a solution across different decarbonisation pathways. These insights are helpful: they show us that a statcom (a voltage support device) is the right solution for every pathway, but that the size and timing is sensitive to different pathways – so we need to monitor customer growth and be prepared to install a larger statcom sooner than in our baseline plan. Using this approach, we identify the right intervention for every constraint at EHV and above.



Stage 4:

Flexibility tendering

Purpose:
Tender for flexibility services to confirm their cost and availability as a solution.

We are committed to procuring flexibility services in a fair and transparent manner and have developed processes to ensure all FSPs are treated equally. Where it is possible to do so we will procure flexibility services via competitive tender, following the steps illustrated on this page.

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

Pre-qualification
- Register organisation
- Register assets
- Service type (pre/post fault)

Bidding
- Ceiling prices provided
- Pre-qualified FSPs automatically notified
- Open tender

Signposting our requirements

Once it has been determined in Stage 3 that a network constraint could be managed through flexibility services, the necessary information will be passed to the Flexibility Team for them to procure the flexibility services. The Flexibility Team carries out the procurement process independently from both the Network Planning and Development and Customer Service teams. This ensures that the financial assessment of FSP bids is carried out transparently, and on a level playing field for all FSPs.

For each network constraint for which we are tendering for flexibility services, we will provide the following information when we tender:

Location – the substation group that requires the support and to which the assets providing the flexibility service need to be connected.

Service window – when the flexibility service is required (e.g. 4-6pm weeknights between October and March).

Contract duration – the duration that the FSP is committed to proving services to the DSO.

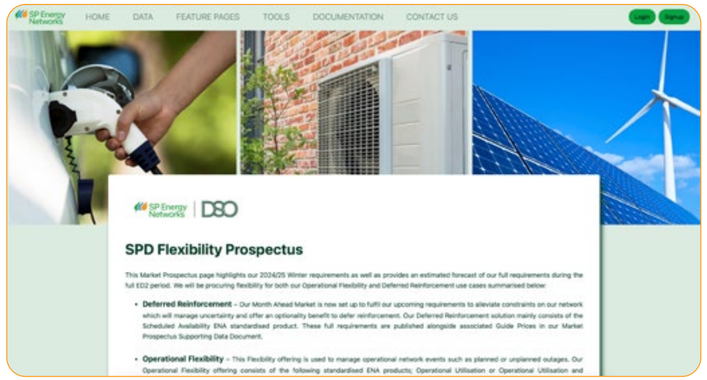
Flexible service capacity – the MW/MVArs of flexibility service required.

Technical parameters – including voltage, run time, and response time of the assets that can provide the flexibility service.

Ceiling price – so that participants understand the potential value of the opportunity.

We acknowledge that it is essential to provide both short and long-term insights to stakeholders, offering a view of how our market is developing and how much flexibility we envisage needing in the upcoming months and years. Due to this, we published our first Market Prospectus in 2024 to support our move to a shorter-term month-ahead market, provide more market confidence, and offer insights into the potential revenue thatproviders could make per constraint zone location. Going forward, this Market Prospectus document will be published annually in the autumn.

View our 2024/2025 Market Prospectus here.



Log on to our SPD Licence Open data platform here.

Log on to our SPM Licence Open data platform here.

These requirements are then populated on the Piclo platform and can be viewed geographically. Our requirements are also displayed on our own heat maps, with instructions on how to access our flexibility tenders.

A summary of our short and longer term requirements along with locational market signals are also published on our Open Data Platform. The aim of this is to provide clear locational and monetary signals on the scale of our flexibility requirements.

Piclo interface showing individual asset registrations within one of our competition areas

Our new month ahead operating model

In recent years, we have observed that some providers faced challenges in meeting their contract commitments due to difficulties in recruiting the required assets that they initially forecasted. As a result, we have faced challenges in receiving the initially contracted capacity in real time which has significantly impacted the capacity available for dispatch. Additionally, participation in our 2023 tenders was lower than expected. However, stakeholders have provided valuable feedback, indicating a preference for shorter-term tenders. These shorter-term tenders has allowed for more accurate and competitive bid pricing and enabled providers to explore a variety of market opportunities.

Following stakeholder feedback, we identified some factors that affected potential FSPs' participation in the longer-term tender rounds including but not limited to:

- Participation in other flexibility markets such as the NESO's Demand Flexibility Service, which have contractual exclusivity clauses that cause contract restrictions on stackability with other markets such as DSO flexibility markets.
- Preference for shorter-term tenders and commitments.
- Aggregators or smaller generators unable to meet the minimum MW threshold capacity of 0.5MW.

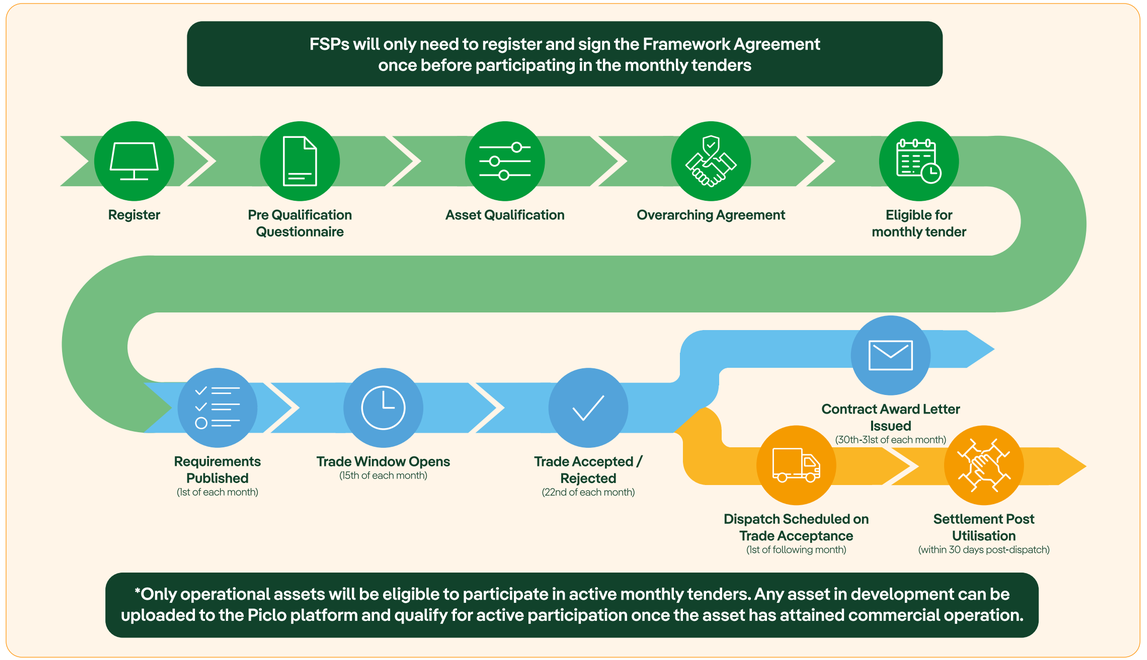
In July 2024, we launched our shorter-term month ahead market which enables Providers to tender more frequently. We will continue to tender on a monthly basis throughout the winter period to understand whether shorter-term month ahead tenders improves market liquidity following stakeholder feedback on previous tenders that demonstrated a preference to change our tendering model to more frequent and shorter term contracts.

As we developed our new month-ahead operating model, we ensured that the above feedback was incorporated into our process by:

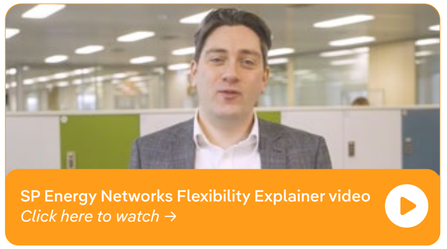
- Reducing the minimum threshold capacity to 0MW to allow smaller generators and aggregators to participate.
- Working with NESO to ensure fairer contract conditions, creating an even playing field for providers to participate in DSO flexibility markets.
- Ensuring the delivery of the new Framework Agreement, developed in collaboration with the Energy Networks Association (ENA) Open Networks Project, to ensure that our Month Ahead Market was launched efficiently with appropriate processes in place by June 2024.

The monthly tender process has allowed for agile, closer to real time tendering activity. The month-by-month tender windows provides more opportunities for new and existing FSPs to tender within a more suitable timeframe for their specific needs.

The process, steps, and timeline of our new month ahead model tendering model is shown below:



In the coming year, we will assess whether our new tender process reduces market barriers to entry by giving FSPs the opportunity to offer more robust bid prices that reflect current market prices and the assets that they have available.



Pre-qualification

Before FSPs can bid into our flexibility tenders they need to register their organisation and their assets on the Piclo Flex platform. To encourage participation, we are seeking to make this process as straightforward as possible.

We work continuously with Piclo to simplify the process and provide webinars and training ahead of our bidding windows to support FSPs who are seeking to participate. To pre-qualify, FSPs need to:

- Apply to the Dynamic Purchasing System (DPS). This is a software tool that allows the registration of FSPs and contains the mechanisms for us to contract flexibility services. FSPs will submit company specific information which we will review for completion and validity. Following acceptance, they will be admitted.
- Provide technical information relating to the assets they will use to provide the flexibility services for each individual location. We will assess the technical and location details to confirm suitability and approve the individual assets.
- Enter into the overarching Flexibility Services Agreement for the individual licence areas.
- All FSPs who have completed the above will be invited to submit bids when the bidding window opens. FSPs can register at any time ahead of the bidding window and can even register assets outside of our competition areas.

Frequency of tenders

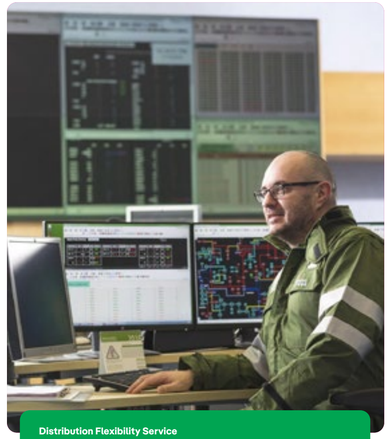
To date we have operated bi-annual bidding rounds, in the spring and autumn, which seek to procure long-term requirements often over multiple years. Based on stakeholder feedback regarding the ability to deliver long term contracts, we are moving to a new procurement model and from May 2024 we will begin tendering on a monthly basis for the following month's requirements. This will increase the certainty of service delivery from FSPs, increasing the confidence by DSOs that flexibility services can provide practical solutions to network constraints.

Recognising that short-term tenders reduce long-term certainty for FSPs, we will also be publishing a flexibility market prospectus, outlining our long-term requirements and the financial opportunity for FSPs on a geographic basis. This will allow FSPs to consider distribution flexibility revenue as they develop business propositions for new assets or to target the recruitment of domestic customers in the case of aggregators/suppliers.

FSPs register their organisation and assets on the Piclo platform and when we open a bidding window they provide their best price which we use to determine winning bids.

Bidding process

Recognising the differing business models and capabilities of individual FSPs, we have developed bidding rules that are making it easier for FSPs to participate, helping to promote the depth and liquidity of flexibility markets and ultimately bring costs down for customers.



More information on our end-to-end procurement process is available in our Participation Guidance Document here.

The rules outlined enable those who may not be able to meet the full requirements for individual constrained locations to take part:

Flexible capacity – FSPs can offer the flexible capacity at a single price, or split the flexible capacity into smaller volumes but at different prices.

Service windows – FSPs must select the service window that they are offering for each individual competition that they are bidding for.

Service duration – FSPs can offer assets that may not be able to run for the entire service times as long as they meet the minimum duration included for each constrained location.

Service period – the duration of contracts may be for more than one service window depending on the specific constrained location requirements, however bids can be submitted for individual service windows.

Pre-qualified FSPs upload their bids for each individual competition. We request that FSPs offer their best price and we pay as bid.

Stage 5:

Intervention decision and contract award

Purpose:
Decide the solution to take forward and place contracts where the solution uses flexibility services.

We need to review the flexibility service bids from Stage 4 to ascertain whether the flexibility solution identified in Stage 3 is technically and economically viable. Where it is, we place contracts with FSPs and proceed with that solution. Where it isn't, we proceed with the alternative solution.

Solution decision time – reviewing the bids

Once the tender bidding window has closed, we assess all flexibility service bids. We are checking for two main things:

1. Is it a technically viable solution – here we're checking that we have received a sufficient volume of bids to meet the capacity requirement for all service windows, that the assets that would provide the flexibility service are in the right location, and that other technical requirements (e.g. response time) are met.

2. Is it at the right price – here we're checking that the flexibility bids have come in within the ceiling price.

These two criteria are considered together. For example, we may accept a higher cost bid that meets all requirements over a lower cost bid that only meets some requirements. We may also procure slightly more or less flexibility services than tendered to obtain a technically viable solution.

The technical assessment is completed by the Network Planning and Development team whilst the economic assessment is completed by our Flexibility team based on the ceiling price defined in Stage 3. Where both these criteria are met, then we proceed with the flexibility service solution. We publish the tender results (see right) and proceed to place contracts with the successful bidder(s).

Where one or both criteria are not met, flexibility services cannot be taken forward as a solution. Where this is the case, we will reject the bids and proceed with developing the alternative solution identified in Stage 3. Where the alternative is a long-lead reinforcement solution, we will continue to re-tender for flexibility services before placing build orders to ensure we are still using the most efficient intervention.

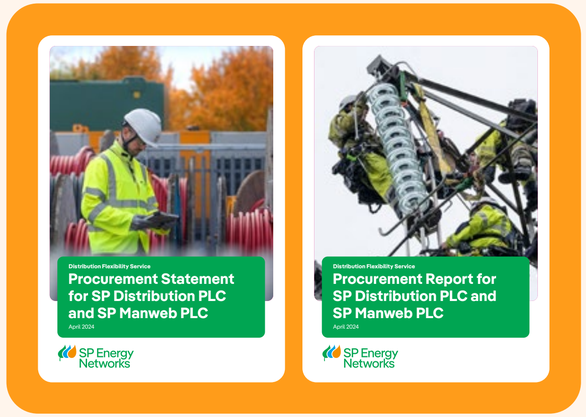
Whichever solution is selected, it is then taken forward and assured through our governance process (page 22).

Transparency

Following our assessment, our bid decisions are uploaded to Piclo Flex, which notifies winning bidders of the decision. For those bids rejected, we provide the reason why, so they have the opportunity to address any issues, improving their ability to participate in future tenders.

To promote transparency and comply with Licence Condition 31E, we also publish the results of our tenders, which includes prices bid and reasons for acceptance/ rejection.

Our Condition 31E report is published annually on our website here.



To view our Procurement Statement click here and you can access our Procurement Report here.

Placing flexibility service contracts – now and in the future

In the past year, we successfully transitioned to a new contractual process framework, moving from longer-term contracts to shorter-term, monthly tenders. This change has proven highly effective. To date, we have witnessed an increase in contract execution and dispatch, achieving over 85% of awarded tenders contracted and dispatched. This represents a significant improvement compared to the pre-2024 longer-term contract approach, where only approximately 5% of tendered services were successfully contracted.

Going forward, we will continue with the the shorter-term contract model. Stakeholder feedback has indicated a strong interest in more short-term tenders, moving towards week-ahead and day-ahead tendering models.

It is understood from stakeholder feedback that this shift would enable providers to stack services with other day-ahead markets. This enables providers to more accurately assess daily market opportunities, allowing for optimised asset utilisation and increased revenue opportunities. Day-ahead markets allow providers to make informed, near real time market decisions which will maximise their assets' profitability, and reduce exposure to market volatility. This capability is crucial to further reduce barriers to participating in our DSO Flexibility Market, increasing its competitiveness with other mainstream UK electricity markets.

A review of month ahead market engagement will be conducted this year, and stakeholder feedback will guide the development for shorter-term market adoption in 2026.

The terms and conditions contained in our overarching agreement are as per those developed by the ENA Open Networks project, which can be found here.

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 as they are responsible for real time network operation and flexibility services are a key real time operational tool – we dispatch flexibility services only when we need them, and we usually only know if we need to dispatch them 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: conform 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.

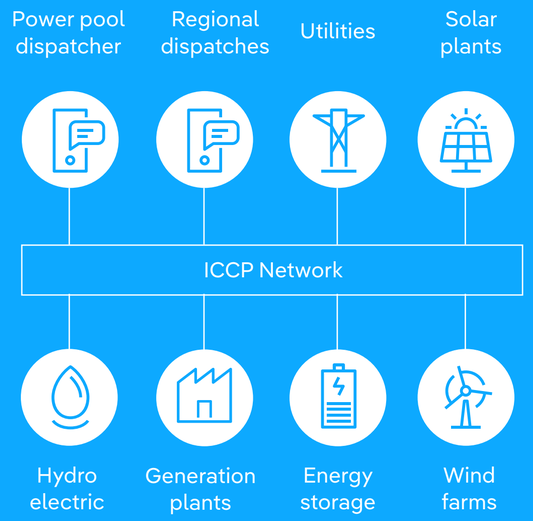
Second, Ofgem have now appointed Elexon as the market facilitator for local flexibility, responsible for 'delivering standardised, easily accessible, and transparent DSO markets'. This new industry body will also be responsible for ensuring co-ordination between NESO and DSO markets and is expected to 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

Continuous challenge and independent insight

We rely on independent, impartial engagement to shape our plans, and seek opportunities to enable stakeholders to engage with us and provide their views. Our Independent Net Zero Advisory Council and Oxera's independent assessment of flexibility services bring vital expertise, insight and challenge as we shape our business strategies.

Bringing the voice of customers and stakeholders into the heart of our business

Our Independent Net Zero Advisory Council

In 2022, we established the Independent Net Zero Advisory Council (INZAC), bringing together 15 external experts to provide challenge and specialist knowledge to both the distribution and the transmission sides of the business across Central and Southern Scotland, North Wales, Merseyside, Cheshire and North Shropshire. With a wealth of experience and expertise from across the energy industry and beyond, the INZAC has a critical role in overseeing and challenging our efforts to enable the path to Net Zero, delivering for the customers and communities we serve. The INZAC is chaired by renowned industry expert, Angela Love, who has over 30 years' experience of the UK/EU gas and electricity markets.

The INZAC:

- provide input and insight to support our Net Zero goals;
- assess performance and ensure delivery of price control commitments;
- ensure consideration of emerging consumer issues and capture the voices of customers and stakeholders;
- offer challenge and constructive contribution to the development of RIIO-3 price control business plans.

This document has been developed with input from our INZAC. We have sought feedback from them, addressed their views and thank them for for their support in developing this Decision Making Framework, and helping to ensure it meets the needs of our customers and stakeholders.

More information about our INZAC is available here.

Seeking independent assessment through impartial engagement

Oxera assessment of Flexibility barriers

Following the low level of FSP response to our tender in autumn of 2021, we commissioned Oxera to produce an independent report highlighting the barriers for FSPs to participate in our tenders and providing a number of recommendations to address these barriers. This report was produced based on engagement with a range of FSPs, industry stakeholders, and Ofgem. The barriers outlined by our stakeholders largely aligned with the findings from Ofgem's Future of Distributed Flexibility consultation. The recommendations from their report have influenced how we are developing our flexibility services seeking to address the barriers outlined below:

Oxera report on the uptake of flexibility services can be found here.

Solutions groups and the barriers they address:

Reducing barriers to entry	Better integration between DSO and wholesale/ NESO market	Adjustments to DNO flexibility architecture	Encouraging take-up of flexible assets
Utilisation risk of assets	Difficulties with revenue stacking	Utilisation risk of assets	Limited TOU offerings
Up-front frictions	Up-front frictions	Need for long-term (10+years) revenue certainty	High up-front costs of purchasing flex assets
Poor alignment with other Flex markets	Poor alignment with other Flex markets	Difficulties with revenue stacking	Consumer unwillingness to change behaviour
Wide range of API's currently used	Wide range of API's currently used	Long lead times from tender delivery	Consumer lack the right equipment
Lack of knowledge		Availability declared in advance of delivery	Lack of knowledge
Concerns over data security/privacy			

Low liquidity of tenders

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 INZAC 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.

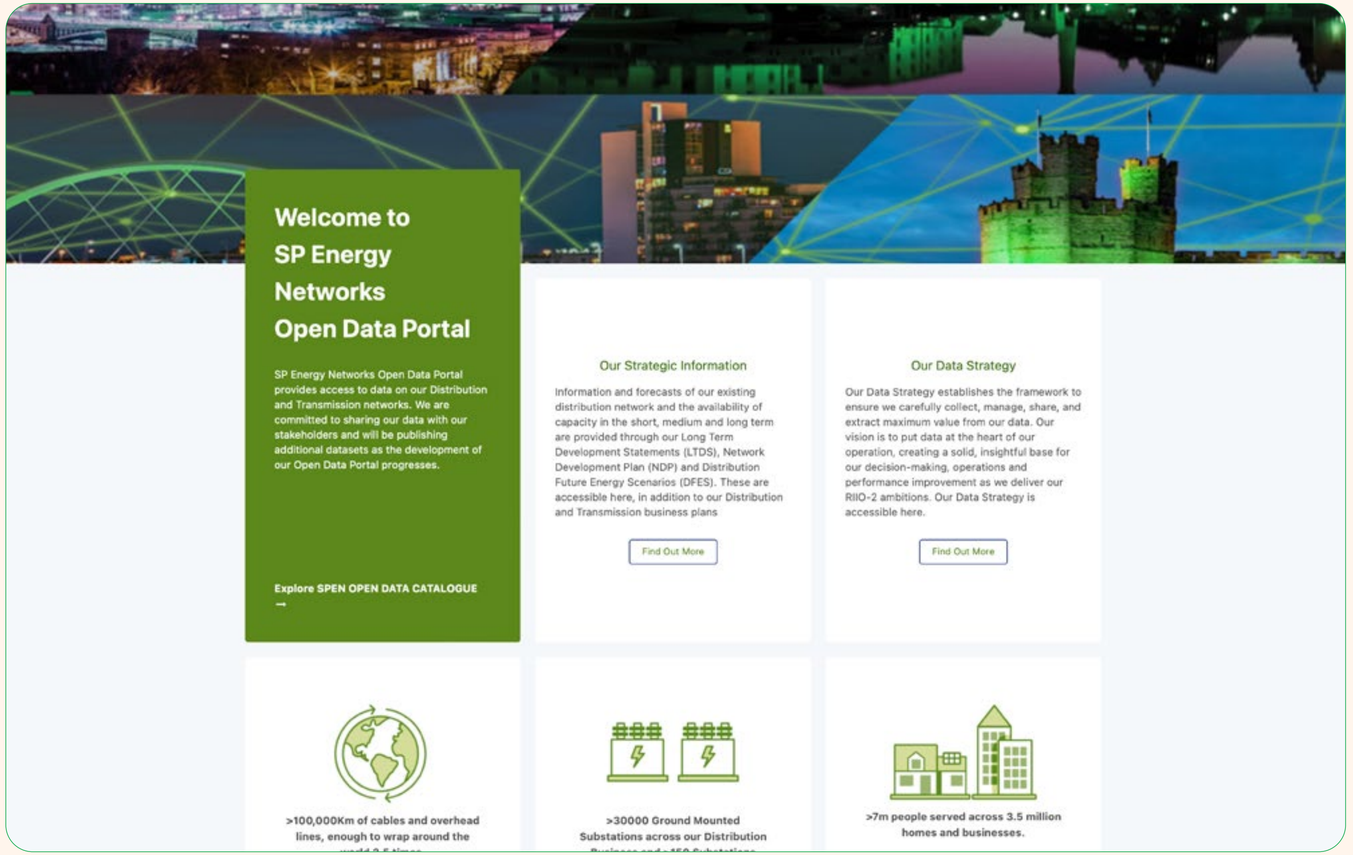
Sharing our data and information

We are committed to becoming a data-centric organisation, harnessing the power of data to drive strategic decision-making, foster innovation, and embrace sustainability. We recognise that access to data, and information, will be a key enabler in our ability to achieve Net Zero, and that we have an important role in facilitating efficient whole system planning and operation, and supporting the development of new markets and opportunities.

We are committed to sharing data with our Customers and Stakeholders on a “presumed open” basis. Through our ongoing engagement, we are aware that stakeholders require access to data and information about our network to develop accurate plans, enhance project proposals, and to understand their impact on our network. It is also important for transparency that our decision making and our future plans are shared with our stakeholders, allow them to feedback their views and to use this data and information to inform their decision-making.

To enable us to efficiently and effectively share our data, we have developed and launched an online “Open Data Portal”. This portal was launched in 2023 and can be freely accessed by our customers and stakeholders via the SP Energy Networks website. The site enables users to search, view, and export datasets in simple, standardised format. Users can easily search our data catalogue and detailed metadata, as well as independently download, export and consume data via an API. We are also working to develop the visualisation capabilities of the Portal, enhancing the information for users.

We have recently undertaken changes to our Website to promote visibility, providing our stakeholders with a clear and simple path to access our data. All datasets have been transitioned to our Open Data Portal, meaning that our stakeholders do not need to visit more than one location when looking for our data. We recognise that not all stakeholders have the same requirements when it comes to accessing data and that is why we make our datasets available in a number of formats including CSV, Excel and JSON, and with the ability for them to be downloaded via an API. We work with our Stakeholders, where possible, to provide data in their preferred format.



Our Open Data portal provides a single, easy-to-access interface for our users, enabling them to easily explore, filter, view, download and consume our available data. Via our portal, stakeholders can:

- Download data in multiple formats
- Consume data via an API
- Feedback on datasets
- Subscribe for datasets specific updates

More information about our open portal is available here.

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.

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