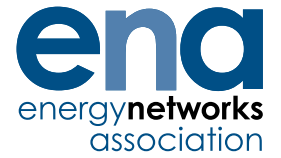


The Voice of the Networks



# Building a more efficient, smarter, cleaner energy system

## Our six steps for delivering flexibility services

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# Foreword

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**As Britain's energy system continues to rapidly transform it will bring new and previously unimaginable benefits for everyone. Over the past few years, Britain's local and national electricity network operators have been working closely with the Department for Business, Energy and Industrial Strategy (BEIS), the energy regulator Ofgem and the wider industry to lay the foundations for the country's smart grid to turn those benefits into a reality.**

This booklet highlights the next major step in this journey.

A smarter, more flexible energy system will see electricity move in multiple directions and embrace the full range of emerging smart energy technologies that are now being deployed in Britain's homes, businesses and communities. It will be underpinned by the principle of flexibility, giving people more control and choice over how they use their electricity and providing new competitive opportunities for them to participate in the energy market.

By harnessing the power of these new technologies and the potential of data, Britain stands to gain from its very own Internet of Energy. Not unlike the boom of the internet in the early 2000s, it will change our lives forever. As the pace of this change speeds up, we must continue to support our most vulnerable people within society.

Our electricity networks are central to this transformation by integrating and enabling greater amounts of low-carbon and smart technology to help deliver new flexibility services markets. These relatively young markets will grow in breadth and size as trends in technology accelerate further and prices fall.

Through Energy Networks Association's Open Networks Project, the long term roles and responsibilities of local electricity network operators are being redefined as markets for flexibility open up and expand. The emergence of these markets, continued uptake of smart energy technologies and increased competition has had a widely recognised beneficial impact to customers, the economy and the environment.

In December 2018, Britain's local electricity network operators launched ENA's first Flexibility Commitment. In this, we committed to openly test the market to compare relevant grid reinforcement and market flexibility solutions for all new projects of significant value. Since that time, we have seen a major uplift in tenders for flexibility services.

This work was a key first step to reducing the costs of new infrastructure investment and laying the foundations upon which a cleaner, more flexible system will be built.

As part of the Flexibility Commitment, Britain's six Distribution Network Operators (DNOs) and now independent Distribution Network Operator GTC, committed to:

- Opening up requirements for building significant new electricity network infrastructure to include smart flexibility services markets as part of day-to-day operations. This covers all new relevant projects of significant value, where local electricity operators face congestion in grid infrastructure that results from increased electricity demand and/or distributed energy projects being connected to the grid.
- Openly test the market to compare relevant reinforcement and market flexibility solutions for all new projects of any significant value.

- Working with Ofgem and other stakeholders to develop the forthcoming RII0-2 price control framework to ensure that the financial incentives that network companies receive are fully aligned with the greater use of flexibility services and do not favour the building of new infrastructure where these services are more efficient.

The principles we adopt within flexibility services markets today are fundamental in defining how the public, businesses and electricity networks interact into the future. They provide the right foundations for the vital work which will continue to be delivered through the Open Networks Project and more widely. Over the long-term, they will be important as new roles and responsibilities emerge including the Distribution System Operator (DSO) role.

Given this, for the first time, we are launching six key steps to the implementation of flexibility services markets in Britain. These six steps outline a consistent and transparent approach to the way we will run competitive tenders, agree contracts and use flexibility services to manage the grid. At the heart of these steps is the networks' commitment to ensure an open, fair and transparent market which provides a level playing field for all participants – building on the positive momentum and industry feedback following the launch of our Flexibility Commitment in late 2018.

To continue developing and growing flexibility services markets, we look forward to working with Government, the regulator and the wider industry to ensure everyone is aware of the opportunities and how to participate in them, whether they be small or large.

# Introduction

## Our six steps for delivering flexibility services

**Britain's six local electricity companies, known as Distribution Network Operators (DNOs), announced their Flexibility Commitment in 2018. Through this, they and now independent DNO GTC, committed to openly test the market to compare relevant reinforcement and market flexibility solutions for all new projects of any significant value.**

Building on this, the DNOs, GTC, the Transmission Owners (TOs) and National Grid Electricity System Operator (ESO) are committing to six key steps as flexibility services are rolled out more widely and we transition to a more efficient, smarter and low-carbon energy system fit for Britain's future. This commitment is being made to ensure this transition is successful and delivers flexibility through open, transparent access to markets while maintaining secure and safe electricity supplies and delivering best value for customers.

These steps apply to how we will procure and use flexibility services to maximise benefits to households, businesses and communities. They will act as the foundation for enabling, supporting and growing flexibility markets across the country. This commitment will directly benefit all customers; not only will flexibility markets help reduce the cost of traditional network reinforcement and support decarbonisation progress towards "net zero", but they will create new revenue streams for all customers by enabling them to sell their services from flexible technologies into these new markets.

We have worked extensively and inclusively with stakeholders, sharing our flexibility developments and listening to wide reaching feedback at every step to arrive at these commitments and we will be seeking further feedback through our Open Networks flexibility consultation in June.

The detail underpinning these six steps will be further developed into consistent, tangible processes, procedures and agreed working methodologies by all participating electricity networks through the ENA Open Networks Project. We will be building on these steps across the breadth of the Open Networks development work on flexibility.

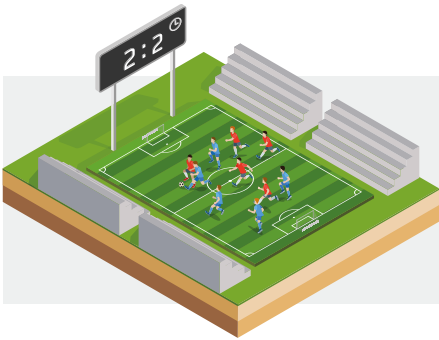
### We will:

- Champion a level playing field
- Ensure visibility and accessibility
- Conduct procurement in an open and transparent manner
- Provide clarity on the dispatch of services
- Provide regular, consistent and transparent reporting
- Work together towards whole energy system outcomes



# Our six steps

## In detail



# 1

### Champion a level playing field

Market neutrality is a fundamental principle of operating Britain's energy network infrastructure. We will procure flexibility services in a way that creates a level playing field for all energy technologies and services. ENA's electricity network members (i.e. all DNOs, TOs, the ESO and GTC) will facilitate and provide convergence and standardisation for customers in order to support this.



# 2

### Ensure visibility and accessibility

We will highlight where and when opportunities exist for flexibility services to play a role in ensuring a secure, consistent energy supply via electricity networks. We will remove barriers and enable all customers to access multiple markets to provide services, for example where they can earn revenue from both the national balancing services market and local flexibility services markets. This will be undertaken consistently and easily and include sharing data with flexibility service providers to develop transparent markets.



# 3

### Conduct procurement in an open and transparent manner

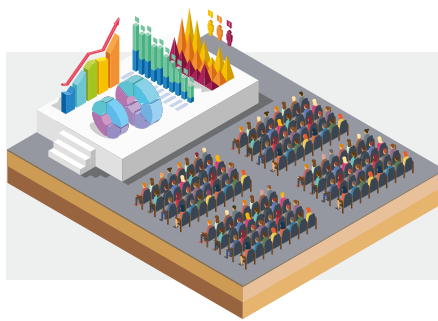
We are committed to being open and transparent when deciding how and why services have been procured from different solutions in order to meet network needs, such as flexibility services from the market, smart grid solutions and traditional network reinforcement. We will define common methodologies for all network operators to follow and be transparent about the criteria used in decision-making. The guiding principle underpinning all decisions is that the solution chosen must be most cost-effective for consumers, while meeting the needs of all customers, the system and the networks.



## 4

### Provide clarity on the dispatch of services

Following transparency in the procurement process, we will take a fair and clear approach to the dispatch of flexibility services to meet electricity system or network needs by setting out the terms and methodology adopted. This includes any decision-making criteria underpinning the dispatch of services.



## 5

### Provide regular, consistent and transparent reporting

Having committed to be transparent in our processes and methods, we will then also provide regular, consistent and transparent monitoring and reporting to provide confidence to the public and ensure all parties learn from what flexibility is used, why and how this contributes to running energy networks in a smarter, more efficient way. All decisions and reasoning, such as traditional reinforcement compared to flexibility services options and cost-benefit analysis, will be clear and readily available. We are committed to sharing these and best practice across the wider industry.



## 6

### Work together towards whole energy system outcomes

All ENA member electricity networks will continue to work closely to facilitate coordinated and efficient arrangements which benefit households and businesses, including activities relating to the decarbonisation of heat and transport. This work is being expanded to the wider energy industry, including the gas, heat, transport and waste sectors, to ensure that changes deliver the best outcomes for everyone on a whole energy system basis. This applies to all six of the steps outlined above.

# Case Studies

## Our commitment in action



### Northern Powergrid activates community energy through mobile game

Northern Powergrid launched a mobile phone game as part of their 'Activating Community Energy' initiative which allowed households to provide demand-side response services to the network and experience the benefits of new flexibility services markets.

As the proliferation of low-carbon technologies increases and energy use continues to grow, the company wants both households and businesses to have opportunities to participate in these markets. Through the game, households were incentivised to use less power at peak times by turning off household appliances, televisions, lights and other home devices in competition for cash prizes, with some lowering electricity consumption by up to 11%.

Activating Community Energy has also provided important insights into how to engage households in providing flexibility services, how to keep them engaged and who services were being provided by. 95% of Northern Powergrid's customers are domestic homes which account for 35% of the electricity they deliver overall.



### UK Power Networks boosts visibility of opportunities through Flexibility Roadmap

Providing visibility of near and long-term market opportunities is crucial to maximising opportunities and UK Power Networks, through their Flexibility Roadmap, has committed to a 'flexibility first' approach to provide benefits to the public and business customers.

The company publicises its requirements for new network capacity to the distributed energy market ahead of the traditional approach of building network reinforcement. It is testing the viability of flexibility services to help meet the growth in energy demand through until 2023.

Long-term, the Roadmap also sets out how UK Power Networks will create new opportunities for flexibility in response to the rapidly changing, decentralised, decarbonised and digitised energy landscape. By 2023, UK Power Networks estimates its market for flexibility could be over 200 MW, which could reduce peak demand for electricity on the distribution network by the equivalent of approximately 130,000 homes.



### Scottish and Southern Electricity Networks develop new methodology

As part of network companies' commitment to being a neutral market facilitator in the transition to a low-carbon, smarter electricity grid, SSEN is working with consultants Frontier Economics to devise a method by which traditional network reinforcements are compared with flexibility services solutions.

As new, low-carbon technologies become more advanced and common-place, they are changing the way that electricity network companies, households, businesses and communities interact with the network. This new methodology seeks to value the various options that are available to alleviate specific network constraints. With this, flexibility service providers in the market can be reassured of a transparent, consistent and level playing field.

Network neutrality is a core market principle for all electricity networks, giving everyone more control over the energy they consume and generate themselves.



### Western Power Distribution commits to early clarity on dispatch

Ensuring flexibility services markets grow and are competitive is key to keeping costs low for bill-payers, but this also means creating an environment where providing services is an attractive investment option for households and businesses.

As part of the Western Power Distribution's 'Flexible Power' initiative, customers contractually agree to change their energy usage in peak times so the networks can be managed more efficiently. The methodology for the selection of flexibility services is shared in advance, providing full transparency to providers of the selection of process, whether their services are used or not.

Flexible Power is continuing to be expanded into new areas within the company's licence area, showing not only a commitment to transparency but to using flexibility services instead of traditional network reinforcement where it is feasible and cost-effective.



### **Electricity North West (ENWL) publishes results of Requests for Proposals**

We believe that flexibility services play a crucial role in the development of Britain's smart grid. Following ENA's Flexibility Commitment signed last year, ENWL has committed to being open and transparent with the results of previous Requests for Proposals (RfPs), a particular type of flexibility service.

To enable this, the company has published on its website an explanation and reason for decisions made regarding RfPs. In addition, customers were invited to provide feedback after each RfP was completed in order to further inform how flexible services are procured in future.

As part this, Electricity North West also wants to ensure all customers have the information they need in order to submit a proposal to provide flexibility services to the grid. Opening up and sharing data about network demands allows for the procurement of the right services for networks, but also allows customers to identify opportunities to provide their services.



### **National Grid ESO leads Open Networks Project Whole Energy System workstream**

Whole systems thinking is critical to transitioning some of Britain's hardest-to-decarbonise sectors. As part of ENA's Open Networks Project, an industry-wide initiative which is laying the foundations for Britain's smart grid, National Grid ESO is leading a workstream that has been set-up to consider a 'whole energy system' approach.

'Whole systems thinking' across gas and electricity networks is still in its infancy, but we strongly believe that taking this view of the changing energy landscape will lead to efficient flexibility service markets and processes that deliver value for the public. A key element to this work has been developing a series of outputs that seek to share best-practice and data across sectors of the economy beyond energy. It also aims to identify efficiencies across the gas and electricity networks through planning and regionally-focused work. Through this leadership role, National Grid ESO is building on past, similar collaborative approaches to help transition our energy system. This includes its work on Regional Development Programmes to facilitate the connection of low-carbon generation and Power Potential, working in partnership with UK Power Networks to develop the world's first joint reactive power market for distributed energy resources.



### **SP Energy Networks' FUSION project helps unlock the value of flexibility**

An increase in distributed energy resources, generation connected at a local electricity network level, coupled with the increasing load demand from low-carbon technologies such as electric vehicles, has fuelled a need to create an active distribution network capable of managing modern customers' needs through innovative solutions.

A key feature of an active distribution network is the ability to quickly draw on flexibility services to help alleviate network constraints. SP Energy Networks' innovative FUSION project will do this by trialling commoditised local demand-side flexibility through a structured and competitive market. It is based on the functions and structures defined in the Universal Smart Energy Framework, an international common standard for smart energy solutions, which promotes competition and transparency.

The project also supports SP Energy Networks' aim of becoming a Distribution System Operator, an emerging role which would manage local energy systems.



### **National Grid ET ensures visibility and accessibility**

National Grid Electricity Transmission (ET) has created a connection heat map to increase the visibility of opportunities across the transmission network and to support new customers looking for opportunities. This is facilitating their ambition to support new types of connection and the transition to a low carbon economy. Due to the increased visibility they have seen a significant increase in connection applications from c.35 to over 100 new power stations, across a total of 24 new customers to the connection market. These new types of customers range from solar, batteries and large data centres.

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