Unlocking Flexibility

A Guide for Local Authorities

UK 100

DSO | UK Power Networks Delivering your electricity

ade Research

Contents

Executive summary

The UK's electricity system is rapidly evolving as the country transitions toward a decentralised, low carbon energy future powered by renewable generation, storage and smart technologies.

In this changing landscape, flexibility, the ability to adjust when electricity is consumed, generated or stored, plays a critical role in maintaining system resilience, reducing costs and enabling more renewable energy to connect to the electricity networks.

For local authorities, flexibility presents a powerful opportunity to support national net zero goals while reducing operational costs, strengthening local energy security and unlocking new revenue streams.

This guide provides local authorities with practical, accessible information on how to engage with flexibility services, whether through technologies they already own or by working with partners across their communities.

Councils often oversee a diverse range of assets, including buildings, EV charging infrastructure, heat pumps, batteries, solar farms and public estates, that can contribute to flexibility when managed intelligently. They can also act as facilitators by encouraging residents, businesses, public sector institutions and community groups to participate, broadening the local benefits of the transition.

The guide outlines the range of flexibility markets available, from local opportunities run by Distribution System Operators (DSOs) such as UK Power Networks DSO, to national services operated by the National Energy System Operator (NESO). It explains revenue opportunities available through these markets, the minimum participation thresholds and how aggregators can support councils with smaller or more dispersed assets.

Practical steps help local authorities understand how to identify suitable assets, engage with DSOs early, review contracts, and integrate flexibility into future planning.

Overall, the guide empowers local authorities with the knowledge, tools and confidence to unlock flexibility across their estates and communities - improving energy resilience, reducing costs and accelerating progress toward net zero.

About

UK100

UK100 is the only network of ambitious councils led by all political parties working together to tackle climate change. We help local leaders overcome challenges and turn innovation into solutions that work everywhere. We build the case for the powers needed to make change happen. From cities to villages, we help communities across the UK create thriving places powered by clean energy – with fresh air to breathe, warm homes to live in, and a healthy natural environment.

Find out more at: www.uk100.org

UK Power Networks DSO

UK Power Networks is the Distribution Network Operator (DNO) for London, the South East, and East of England. It owns and maintains the cables and substations that deliver electricity to 8.5 million homes and businesses – around 20 million people across 133 local authorities. In 2023, UK Power Networks launched the UK's first independent Distribution System Operator (DSO). DSO's main objective is to ensure there is the right capacity in the right place, at the right time, and at the lowest cost for their customers, with local authorities as one of their key customer groups.

Find out more at: ukpowernetworks.co.uk and dso.ukpowernetworks.co.uk

To find out more about flexibility and whether you are eligible to start earning money from your assets, contact the Flexibility Markets Team at: flexibility @ ukpowernetworks.co.uk

ADE

ADE is the leading industry association championing an efficient, low-carbon, demand-led energy system across the UK. At its core, ADE: Research[1] provides the objective, evidence-based analysis that underpins ADE's credibility as the leading experts on flexibility, industrial decarbonisation, and heat networks. ADE: Demand[2] works with our members, the government and the wider energy system towards ensuring every household, commercial business and industrial site has a commercially viable path to decarbonisation.

Find out more at: www.theade.co.uk

1 Introduction

1.1 The energy system is changing

The UK's electricity system is undergoing a fundamental transformation as we shift from fossil fuels to a system dominated by offshore wind, solar and other low-carbon generation and underpinned by smart, flexible demand and storage.

Unlike traditional power stations, renewables produce power when the weather allows and flexibility enables us to match supply and demand and avoid overbuilding costly new infrastructure.

1.2 What is flexibility?

Flexibility is the ability of an organisation or an individual connected to the electricity network to change when they generate or consume power.

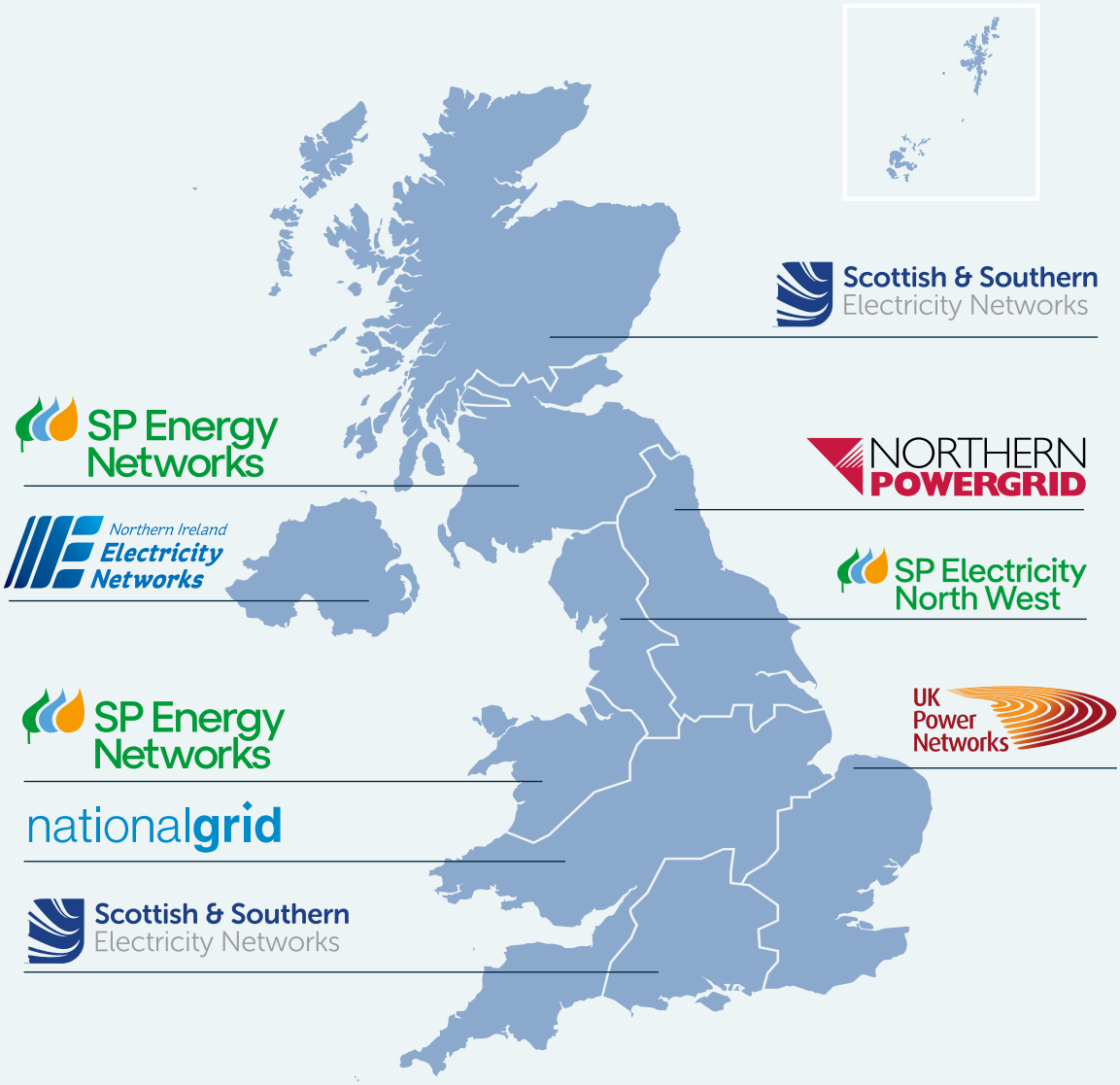
This can help reduce the pressure on the network at certain times, such as during the evening (traditionally when demand for electricity is highest) or when very windy or sunny (when generation is highest). Managing this is important because it reduces wasted renewable energy, can help keep energy costs down, and makes it easier for businesses to cut their carbon emissions.

In exchange for 'turning up' or 'turning down' their activity, customers can receive money for supporting the network. Flexibility markets are commercial mechanisms that enable system operators to pay organisations or individuals to change the way they use or generate electricity when the network needs.

Reduce consumption or increase generation at times of peak demand

Increase consumption or reduce generation at times of excess renewable generation

There are national markets run by National Energy System Operator (NESO),[3] and regional/local markets operated by Distribution System Operators (DSOs) like UK Power Networks DSO,[4] each with electricity prices that vary by time period.



If you don't know who your DNO/DSO is, you can find more information at the Energy Networks Association website.[5]

1.3 Why should your local authority engage in flexibility?

Engaging in flexibility provides system-wide benefits for everyone.

- ✓ **Helps cut energy bills**
- ✓ **Generates new revenue streams**
- ✓ **Reduces the need for costly or disruptive grid upgrades**
- ✓ **Helps manage future upgrade and retrofit costs**
- ✓ **Supports climate targets**
- ✓ **Strengthens energy security**
- ✓ **Enables more renewable energy**
- ✓ **Enhances grid resilience**

2 Participating in flexibility

2.1 How can you engage?

As participants

Local authorities can play an active role in flexibility markets when they own or operate assets such as low carbon technologies (battery storage, electric vehicle (EV) chargers, solar farms) as well their own buildings that are connected to the electricity network.

If these assets can adjust how much electricity they use or generate in response to signals from the electricity network, such as at times of high or low demand, local authorities can play an active role either directly through their Distribution System Operators (DSO) or through third-party aggregators.

This involvement creates opportunities to unlock value from local energy assets while contributing to the reliability and efficiency of the local electricity grid.

As enablers

Local authorities are uniquely placed within their communities to act as enablers of energy flexibility, with the ability to influence residents, local businesses and their own supply chains.

Beyond embedding flexibility within their own operations, they can champion and promote flexible energy practices across their local area, including to residents, local businesses, the wider public sector (such as schools, colleges and hospitals), and community organisations. By encouraging these groups to engage with electricity suppliers or third-party aggregators, local authorities can help widen participation in flexibility markets. This, in turn, can help local communities generate revenue, reduce energy costs and strengthen the resilience of the local energy system.

Local authorities can also use their procurement and commissioning powers to embed flexibility requirements within contracts awarded to their suppliers. This provides a practical mechanism for driving the adoption of flexible energy practices across a wider network of organisations and businesses.

As trusted communicators, advisers and facilitators, the enabling role of local authorities is likely to become increasingly important as more residents and businesses adopt decentralised energy technologies.

With electricity demand rising as electrification accelerates, flexible energy practices will be critical to unlocking local economic growth and supporting the delivery of new housing.

2.2 Who are aggregators?

Aggregators are third-party companies that pool the flexibility potential from many different assets, whether from local authorities, businesses, or households.

They create a combined offering that's large enough to meet the technical and commercial requirements needed to access both local flexibility markets and national balancing services. They handle all the coordination, compliance, and communication with network operators on behalf of their customers – removing complexity and making the process straightforward for local authorities.

Because flexibility markets can sometimes be too technical, aggregators can help simplify the process and enable local authorities to unlock value from their assets without needing specialist expertise or direct engagement with market platforms.

Flex Assure

Flex Assure[6] is an independent voluntary compliance scheme that sets common standards for flexibility service providers.

As energy flexibility is new to many users, building confidence and trust in flexibility service providers is essential.

These codes set out minimum standards that protect customers and help build trust in how services are delivered.

By defining and enforcing these standards, Flex Assure gives energy users confidence in the service they will receive from member companies.

Flexibility providers who join Flex Assure as members must demonstrate that their organisation aligns to the relevant code of conduct. The scheme runs two codes of conduct:

- Industrial & Commercial Code of Conduct[7]
- Domestic & Microbusiness Code of Conduct[8] (formerly known as HOMEflex Code)

2.3 Assets that can provide flexibility

Flexible assets are those that can adjust the timing of their electricity consumption, generation or storage in response to signals from the electricity network.This ability to shift when power is used or stored can provide valuable flexibility to support grid stability and optimise energy use.

Examples of flexible assets include:

Electric Vehicles (EVs) and charging infrastructure

Both domestic and public EV charging stations offer flexibility by scheduling charging during off-peak times.

Grid-scale, commercial, and domestic batteries

Batteries at various scales can store surplus electricity when it is abundant and inexpensive, then release this stored energy during periods of high demand.

Heat pumps, storage heaters, and heat networks

These assets provide flexibility by allowing their operation to be adjusted, shifting the timing of their usage.

Public, industrial or commercial buildings

Facilities such as council estates, commercial premises, schools, car parks and depots, landfill sites and other industrial assets can collectively contribute to flexibility by shifting electricity usage outside of peak times.

Large-scale renewables

Assets like solar farms, wind turbines, and other renewable generation sites can offer flexibility by adjusting their output when technically possible.

When paired with storage, these assets can shift the release of generated energy to periods of higher demand, enhancing the value of renewable generation.

Note:

Most flexibility services require a minimum capacity commitment,starting from 10kW for DSO markets as a single asset or this can be aggregated across multiple smaller assets in the same zone. The minimum capacity for national markets is 1MW but is set to reduce to 0.1MW.

Even if your assets fall below these thresholds, aggregators can combine them with others to meet minimum requirements, making participation accessible regardless of individual asset size.

2.4 How flexibility can be delivered

Flexibility in energy usage or generation can be provided in two main ways: implicit flexibility and explicit flexibility. Understanding the distinction between these approaches helps organisations and asset owners maximise value from their participation in flexibility markets.

Implicit flexibility

Operates by responding automatically to price signals, such as those provided by time-of-use tariffs. In practice, this means that systems or devices are programmed to shift their operation based on pre-set electricity price periods.

For example, an EV charger can be set to delay charging until off-peak hours, when electricity is less expensive. This type of flexibility does not require active management or intervention during each event, as the response is built into the system's regular operation.

Explicit flexibility

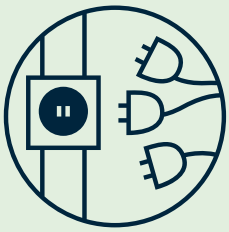
Operates by making deliberate adjustments to electricity consumption, generation, or storage in direct response to specific requests from the grid.

These requests are typically communicated through flexibility markets and coordinated via market platforms.

When an explicit flexibility action is taken, the asset owner receives direct compensation for their response, as the action is tailored to address real-time needs on the electricity network.

2.5 How much could you earn?

Flexibility revenues vary depending on your assets and location, but here are some indicative annual values to help you assess the opportunity:

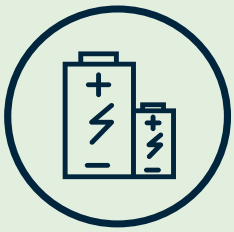


Home and on-street charging
Shifting demand to off-peak or time of high renewable generation

£65 per 7kW charger (annual)

Storage heat, heat pumps, heat networks, energy efficiency
Shifting demand to off-peak or time of high renewable generation

£35 per heat pump (annual)



Home, community or grid-scale batteries
Charge off-peak or discharge at peak

£240 per 4.8kW battery (annual)

Note: *These values are indicative only and not guaranteed. Actual revenues depend on location, asset availability, and market conditions.*

3 Steps you can take to unlock your flexibility potential

To maximise flexibility opportunities, consider the following actions to make the best use of your local authority's assets, encourage flexibility across the wider community and integrate it into your strategic plans.

3.1 Flexibility from local authority assets

Evaluate your electricity consumption and flexibility

Identify potential flexible assets or sites and their locations. Pay attention to overall consumption, patterns of peak demand, and identify specific assets or operations capable of shifting operation times or temporarily reducing load. This foundational understanding is crucial for pinpointing opportunities where flexibility can be delivered.

Connect with flexibility aggregators

Flexibility aggregators play a crucial role in making market participation accessible, especially for smaller assets that may not meet minimum capacity thresholds on their own. Aggregators can bundle multiple assets and navigate complex market rules on your behalf. By partnering with an aggregator you can get expert support to navigate flexibility markets, simplify your participation, and unlock new revenue opportunities.

Review contracts and procurement policies

Engage with your procurement, energy management and estates teams to clarify whether your existing supply, Power Purchase Agreement (PPA), or asset-management contracts permit participation in flexibility markets. Some contracts and frameworks may restrict third-party trading or revenue stacking, so early clarification is vital. Note that flexibility contracts often differ from traditional procurement, potentially involving revenue sharing or third-party control instead of upfront costs. Early engagement with procurement teams is therefore recommended.

Engage with your DSO

Reach out to your DSO (or ask your aggregator to do so on your behalf) to find out about upcoming local flexibility requirements, procurement timelines, and the specific criteria for participation.

DSOs procure flexibility services that help maintain and balance the local electricity network, and that help manage grid constraints and support system reliability. Early engagement with your DSO enables you to understand the opportunities available in your area and the steps needed to qualify for participation.

Decide which markets to participate in:

Review the range of available flexibility markets, including NESO-run national services and local DSO initiatives. Assess current system support needs and determine whether your flexible assets are compatible in terms of location, timing and minimum capacity requirements for participation.

3.2 Promote flexibility in the wider community

Communicate flexibility benefits and build support

Clearly convey how flexibility measures can reduce costs, cut carbon emissions, support net zero goals, and generate revenue. Public sector demonstration projects can also encourage wider local adoption of flexibility initiatives.

Engage local communities and energy groups

Actively engage residents, businesses, and community energy organisations to increase awareness of flexibility opportunities. Community groups can help identify suitable flexible assets, such as schools, community centres, EV charging hubs, or shared heat networks. Supporting community-led flexibility strengthens local resilience, lowers energy bills, and helps ensure that flexibility benefits are widely shared.

3.3 Incorporate flexibility in your strategic plans

Develop a flexibility plan for an entire estate

Prioritise sites that offer the strongest technical and commercial potentials for flexibility. Identify any upgrades you might need, like better metering or controls, to enable participation. Consider piloting flexibility at one or two flagship sites before implementing them more widely across the estate.

Incorporate flexibility in future projects

For new buildings, retrofits, EV charging point deployments, heat electrification projects, or battery installations, ensure that systems are designed to be flexibility ready. This means adding smart controls, appropriate metering, and ensuring that grid-connected assets are responsive to flexibility signals.

4 How to get started with your DSO

Flexibility is not required everywhere or at all times; the need for flexibility services depends on specific locations and time periods when your DNO/DSO identifies a requirement to balance the electricity grid. It is important to initiate contact with the appropriate team within your DSO to gain a clear understanding of their current flexibility needs and to learn how you can participate in their flexibility services.

4.1 How UK Power Networks DSO can help you get started

All you need is a portfolio of local assets with a minimum total capacity of 10kW (this can be across multiple assets), and the ability to adjust your consumption or generation during certain times. This could be either manually, by physically increasing or decreasing demand, or automatically through communications enabled devices. Additionally, this can be done for both existing and planned projects.

If you are in London, East or South East of England, UK Power Networks DSO Flexibility Markets team[9] can help you get started with flexibility services.

Arrange a discussion: Curious about what flexibility can do for you? Email the team at flexibility@ukpowernetworks.co.uk to schedule a personalised session with their expert team and explore your potential benefits.

Register for their events: Meet the team, hear about the latest opportunities and network with peers from across the industry.

Join their mailing list: Email them and they will add you to their monthly round-up of progress, insight and opportunities.

Visit the flexibility hub[10] to find out more information on how to participate.

UK Power Networks DSO has also established the Local Net Zero team,[11] focusing on supporting local authorities with their long-term energy planning. The team offers tailored services to facilitate planning and delivery of local net zero plans, with data[12] and free digital tools, such as LAEP+[13] and ChargePoint Navigator.[14] Book a dedicated 30-min session with the team[15] or email them at LAEP@ukpowernetworks.co.uk to find out more.

How does flexibility relate with your local area energy?

Flexibility enables the transition to net zero at a faster pace and lower cost for all. Local Area Energy Plans (LAEPs) typically consider current network capacity when assessing the potential for connecting new technologies.

Ensuring flexibility is considered in these areas specifically, will allow DSOs to connect more decarbonising technologies without having to make costly and time-consuming network upgrades.

The local intelligence from local area energy plans helps directly enhance the forecasts DSOs use to plan their network investments.

5 Understanding the flexibility markets

DSO markets refer to DSOs paying flexibility providers helping them manage the distribution network in their areas. The National markets refer to the National Energy System Operator (NESO) procuring flexibility to address national and transmission network needs.

5.1 DSO markets

The need for flexibility is ongoing and expanding. DSOs offer two opportunities each year to secure long-term contracts as well as daily auctions for those less able to commit. There are three different ways that local authorities as flexibility providers can participate in the DSO flexibility markets:

Scheduled utilisation (Long-Term)

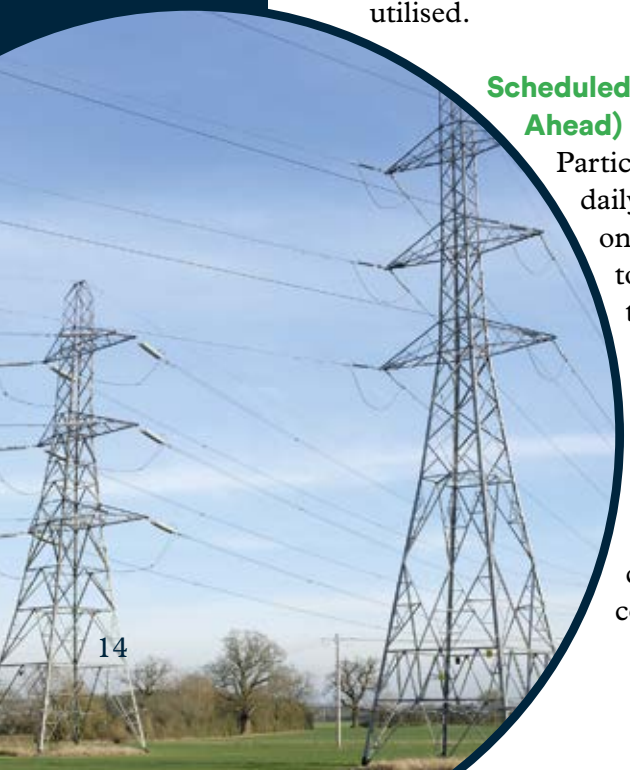
Flexibility providers commit to reducing their electricity usage during specific time windows, such as winter evenings. They know in advance when they need to reduce demand, making this predictable and easy to plan for.

Scheduled availability & operational utilisation

Flexibility providers commit to being available to provide flexibility during agreed time windows. Actual requirements are communicated the day before, so this is akin to being "on call". Flexibility providers receive payment for availability and additional payment if their flexibility is utilised.

Scheduled utilisation (Day Ahead)

Participation is through daily auctions, agreeing one day in advance to provide flexibility the following day. This approach is more dynamic and suited to those able to respond at short notice or those who can't commit to longer contracts.



5.2 National flexibility markets

In addition to local opportunities, there are also the national flexibility markets available to participants. Two of the most accessible routes for local authorities are the Demand Flexibility Service (DFS) and the Capacity market. These services are specifically designed to accommodate the types of assets typically owned by local authorities. By contrast, other national services tend to have higher technical requirements and operational complexity, making them more appropriate for aggregators or large organisations with specialised assets and advanced control systems.

Capacity market

The Capacity market ensures there is enough electricity available to meet peak demand during times of system stress. Participants commit their assets to be available when required, and receive payments for their availability even if they are not called upon. This arrangement provides a stable and predictable revenue stream. Additionally, participation in the Capacity market can be combined with services like DFS to further enhance the value of flexibility assets.

Demand Flexibility Service (DFS)

The Demand Flexibility Service is the most accessible national service for local authorities. It is designed to reward organisations for providing flexibility during periods of grid stress. When the NESO issues advance notifications, participants are asked to reduce or shift their electricity use in order to relieve pressure on the grid and help maintain system stability. The minimum participation volume for DFS will be reduced from 1MW to 0.1MW in 2026, making it even more accessible to smaller asset owners.

5.3 Other national and local markets

Wholesale Market Participation

Flexible assets can respond to electricity price signals in the wholesale market, shifting consumption or generation based on price fluctuations. Access is limited to licensed suppliers and aggregators registered as Virtual Lead Parties (VLPs).

Local Constraint Market

Targets flexibility providers in specific geographic zones to relieve local grid congestion. This service pays for both turn-down (reducing consumption or increasing export) and turn-up (increasing consumption or reducing export), making it particularly suited to batteries, EVs, and smart appliances.

Reserve Services

Slow Reserve: Provides grid support over longer timeframes (tens of minutes to hours), suited to assets like commercial HVAC systems, industrial processes, or aggregated domestic loads that need more time to adjust.

Fast Reserve: Activated within minutes, requiring rapid response from technologies like batteries, EVs, or flexible industrial loads. Aggregators can bundle smaller assets to meet participation thresholds.

Balancing Mechanism (BM)

A core tool for maintaining real-time grid stability.

Flexibility providers offer assets to increase or decrease electricity usage or generation on demand, receiving payment for each response. NESO sends instructions as needed, and providers are paid for responding.

While the BM has higher technical and operational requirements than services like DFS, it offers greater earning potential and frequent dispatch opportunities, particularly for fast-responding assets like batteries, EVs, and flexible industrial loads.

Response Services

Designed to maintain grid frequency at 50Hz through fast, automated responses within seconds. These services require high-performance assets with advanced control systems, typically batteries or similar technologies capable of rapid, precise adjustments.

While more technically demanding than other services, they offer strong financial returns for qualifying providers.

Revenue Stacking - maximising the value of flexibility

Local authorities can increase the financial return from flexible assets by "stacking" revenues across different markets and services.

Instead of using a battery, EV chargers, or demand-shifting asset for a single purpose, it can provide multiple services at different times for example, reducing demand during local DSO constraint events, responding to national system needs through NESO services, and benefiting from time-of-use or peak-avoidance savings on energy bills.

Stacking can significantly increase total value, but it must be managed carefully to avoid conflicts between services and to ensure compliance with contract rules.

6 How to earn revenues from UK Power Networks DSO flexibility services

Register

Register at the Localflex platform,[16] to view all the tender opportunities from UK Power Networks DSO. Day ahead tenders run on an ongoing basis, long term tenders launch twice a year, and smaller ad hoc tenders are released as needed to manage planned outages on the network.

Get qualified

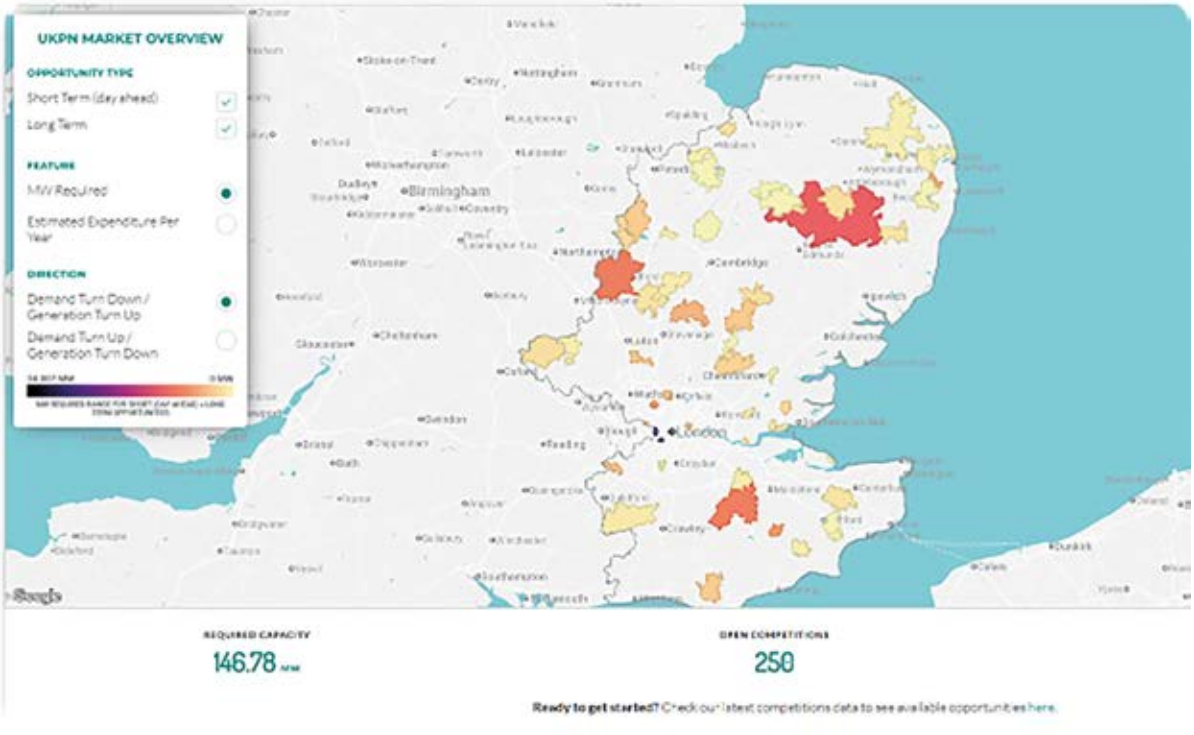
UK Power Networks DSO Flexibility Markets team[17] will validate your organisation details and that your flexible assets are able to provide services to the DSO.

Sign a flexibility agreement

Formalise your participation through a standard contractual agreement.

Start earning revenue

Control your connected flexibility assets following UK Power Networks DSO requests and receive revenues by doing so.



Screenshot of LocalFlex flexibility zones on map (correct as of January 2026)

7 Debunking common myths

✗ 'Local flexibility doesn't have much impact'

✓ **Reality:** UK Power Networks DSO delivered £114 million of customer benefits the past year and £91 million of customer benefits the year before through flexibility.

✗ 'This is a temporary opportunity'

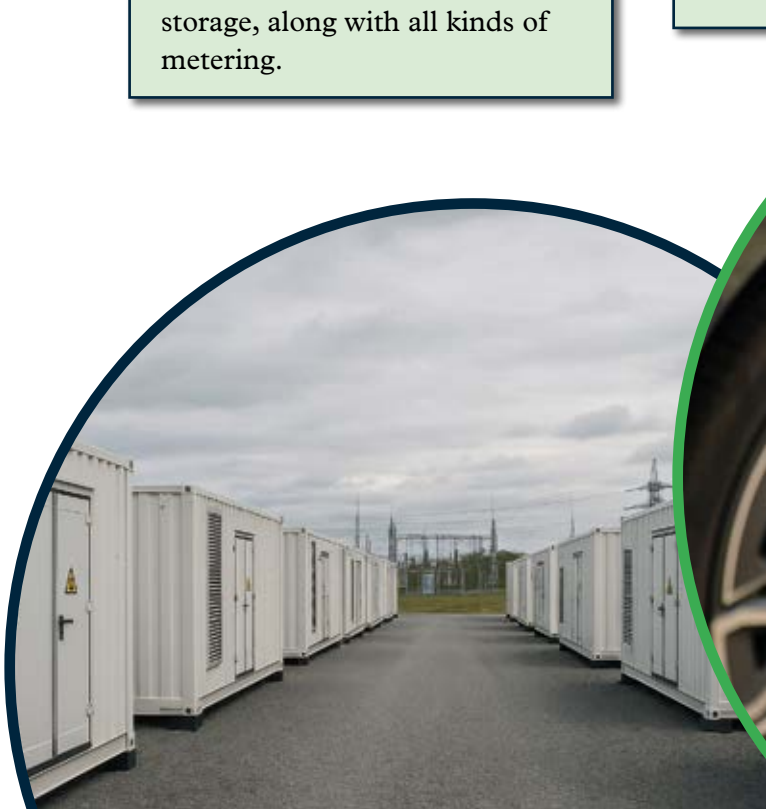
✓ **Reality:** Flexibility is a long-term component of the government's strategy, with ongoing investment in the flexibility market and new infrastructure to support the transition to net zero. UK Power Networks DSO currently offer contracts of up to three years in length and may request further flexibility if they have a continued need.

✗ 'The market is for specific technologies, I can't participate'

✓ **Reality:** Flexibility markets have broadened their accessibility. If you can offer at least 10kW of flexibility across a local grouping of assets, you can benefit. All technology types are welcome, including energy efficiency, electric vehicle chargepoints, electric heating and battery storage, along with all kinds of metering.

✗ 'I need to wait until I've automated everything'

✓ **Reality:** Markets support a range of participation levels, including manual and automated responses ensuring flexibility services are accessible to various technological capabilities. You can get started with minimal automation and add more over time.



Key definitions

Distribution Network Operator (DNO) is a company licensed to own and operate the physical electricity distribution network infrastructure in a specific geographic region.

Distribution System Operator (DSO) is an evolution of the DNO role, taking on broader responsibilities to develop strategic plans that meet future capacity needs, support local decarbonisation goals, and enable the cost-effective integration of low-carbon technologies.

National Energy System Operator (NESO) is an independent public body responsible for managing and planning the UK's electricity and gas networks with the objective of facilitating the country's transition to net zero, while ensuring the energy system remains reliable, efficient, and secure.

Short duration flexibility encompasses technologies that can respond to changes in supply and demand over minutes to several hours.

Long duration flexibility technologies can provide a reliable source of electricity for managing daily, weekly or seasonal periods of low renewable output.

Availability fee is the payment received for committing an asset to being available to provide flexibility during specified time windows, regardless of whether the asset is actually called upon to act.

Utilisation fee is the payment received for actually delivering flexibility when called upon for example, reducing consumption or increasing generation in response to a dispatch instruction from the grid operator.

Notes

1 ADE Research homepage, https://www.theade.co.uk/research/

2 ADE, Demand. https://www.theade.co.uk/demand/

3 National Energy System Operator website. https://www.neso.energy

4 UK Power Networks DSO website. https://dso.ukpowernetworks.co.uk

5 Energy Networks Association, Who's my network operator? https://www.energynetworks.org/customers/find-my-network-operator

6 Flex Assure website. https://www.flexassure.org/

7 Flex Assure Code of Conduct (2023) https://www.flexassure.org/images/Flex_Assure_Code_of_Conduct_-_CC005_Oct_2023.pdf

8 Flex Assure (2025) Domestic & Microbusiness Code of Conduct. https://www.flexassure.org/images/Domestic__Microbusiness_Code_Final_Print_Ver2.pdf

9 UK Power Networks DSO, Using flexibility services to keep costs down, manage uncertainty and speed up connections. https://dso.ukpowernetworks.co.uk/flexibility

10 UK Power Networks DSO, Discover, view, download tender documents. https://dso.ukpowernetworks.co.uk/flexibility/tender-hub

11 UK Power Networks DSO, Get in touch with our team. https://www.yourlocalnetzerohub.co.uk/contact/get-in-touch

12 UK Power Networks DSO, All the data for Net Zero planning in one place. https://ukpowernetworks.opendatasoft.com/pages/laep/

13 UK Power Networks DSO, LAEP+ planning tool. https://www.yourlocalnetzerohub.co.uk/plan/laepplus-planning-tool

14 UK Power Networks DSO, ChargePoint Navigator. https://www.yourlocalnetzerohub.co.uk/plan/chargepoint-navigator

15 UK Power Networks DSO, Get in touch with our team. https://www.yourlocalnetzerohub.co.uk/contact/get-in-touch

16 LocalFlex homepage. https://www.localflex.co.uk/home

17 UK Power Networks DSO, Using flexibility services to keep costs down, manage uncertainty and speed up connections. https://dso.ukpowernetworks.co.uk/flexibility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