

Registered Office:
Newington House
237 Southwark Bridge Road
London SE1 6NP

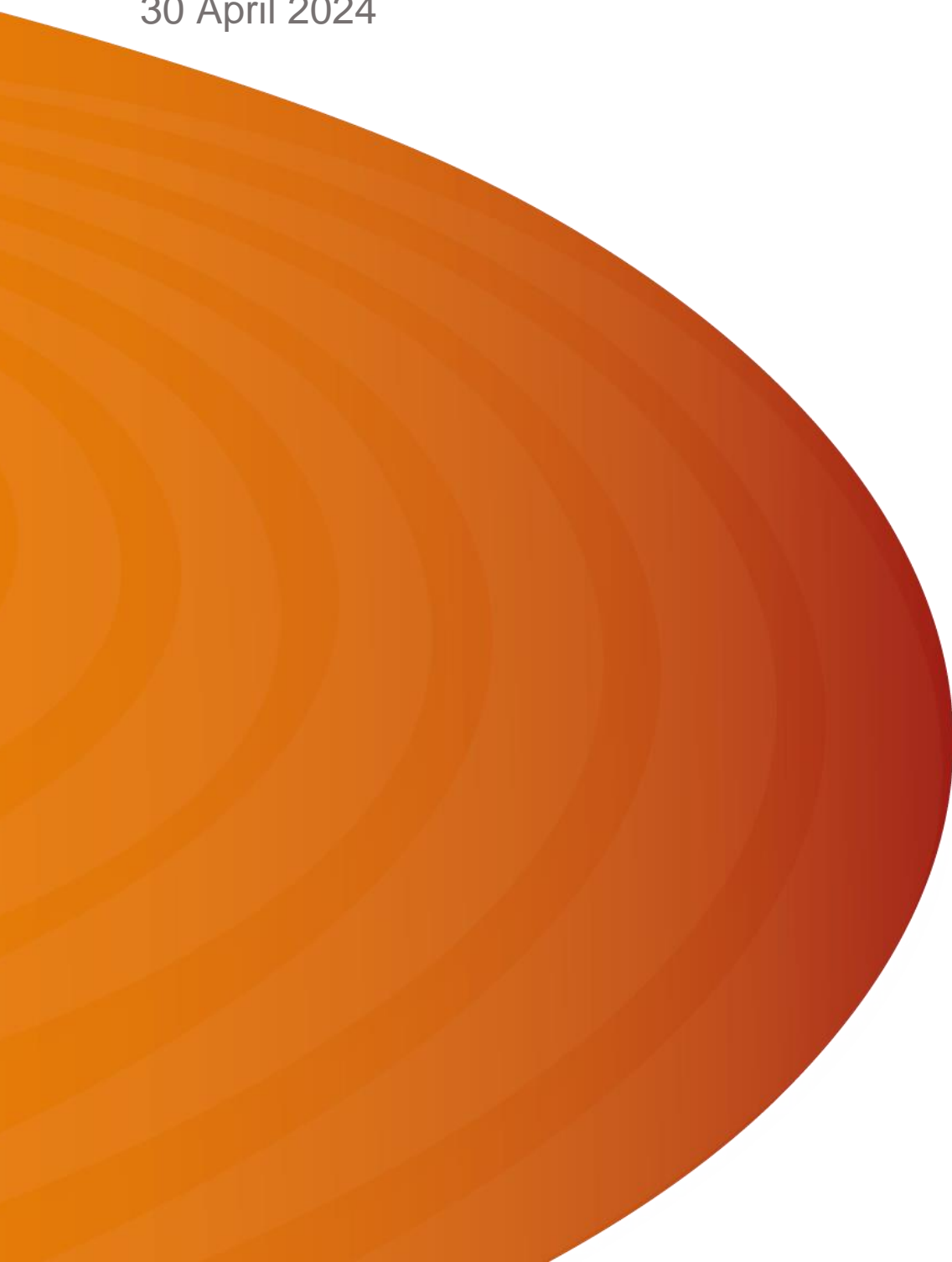
Company:
UK Power Networks
(Operations) Limited

Registered in England and Wales No: 3870728

Flexibility Services Procurement Report

Our procurement and use of flexibility in 2023/24

Standard Licence Condition 31E Reporting Requirement
30 April 2024



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Executive Summary

We are the UK's biggest electricity distributor delivering power to 8.5 million homes and businesses across London, the East and South East of England. We keep the lights on across 29,250 square kilometres, serving 19 million people from Cromer in the east to Brighton on the South Coast.

Flexibility is a critical tool in enabling Net Zero at lowest cost for the customers we serve. In our Business Plan for RII0-ED2 (2023-28), we set out ambitious commitments for the procurement and use of flexibility to defer or avoid £410m of network investment. We were the first Distribution Network Operator (DNO) to tender for Low Voltage (LV) needs, and we were the first and only Distribution System Operator (DSO) to undertake large-scale tenders to cover export constraints at a High Voltage (HV) and Extra High Voltage (EHV) level. In winter 2023, we launched our day-ahead product to supplement the existing long-term tenders and started procuring flexibility to support our planned outages on the networks.

This Procurement Report document summarises the types of flexibility we procured and dispatched in the 2023/24 regulatory year.

Key highlights contained in this document:

- **Flexibility procurement and use summary (Section 2):** We focused on growing our procured and operational flexibility to deliver our ED2 flexibility commitments. In doing so, we deferred £91m of network investment that would otherwise have been made in 2023/24. Our key achievements include:
 - Awarding more than 1GW contracts for Tender Round 7 in April 2023. This volume was reported within our 2022/23 Flexibility Report and is not repeated here;
 - Running two additional long-term tenders, multiple day-ahead tenders and two tenders to support planned outages during the 2023/24 Reporting Period. We tendered a total of 934 MW and awarded a total of 438 MW contracts.;
 - The level of dispatched flexibility which grew seven-fold, from 1,092MWh to 7,818MWh and includes our first demand turn-up actions;
 - A ten-fold increase in operational flexibility from 28MW to 312MW;
 - Procuring flexibility to support planned outages; and
 - Launching our day-ahead tenders to supplement the existing long-term tenders.
- **Stakeholder engagement (Section 3):** We engaged throughout the year with flexibility providers to improve our products, processes and to ultimately increase participation in tenders. On top of our key engagement events such as the Flex Forums, we also focused on the following:
 - Increasing domestic participation through proactive engagement with energy suppliers and aggregators;
 - Widening participation and opening up opportunities for energy efficiency
 - Standardising and enhancing the flexibility provider experience across Great Britain;
 - Coordinating with other markets to improve stacking opportunities; and tackling whole system issues, including through the Megawatt Dispatch service.
- **Economic viability (Section 4):** Our Distribution Network Options Assessment (DNOA) process governs the economic viability of the flexibility services procured. Within the 2023/24 year we published our first DNOA report and engaged with stakeholders to make improvements, before issuing a 2nd report in April 2024. In this document we describe the key assessments we undertook as part of the 2023/24 tender process to ensure economic procurement and dispatch.
- **Carbon reporting (Section 5):**

This section provides an estimate of carbon emissions from our dispatch activities in the 2023/24 period. We have used the methodology agreed by all DNOs through the ENA's Open Networks programme.

1. Introduction

Introduction to the company

We are the UK's biggest electricity distributor, delivering power to 8.5 million homes and businesses across London, the East and South East of England. We keep the lights on across 29,250 square kilometres, serving 19 million people from Cromer in the east to Brighton on the South Coast.

A key part of our vision is to 'Enable the Net Zero Transition For All'. This means ensuring we have right electricity network capacity, at the right time and in the right place – at lowest cost. Over the next few years we expect millions of electric vehicles and heat pumps to connect to our network, along with grid-scale renewables and batteries. This is a huge shift in the volume and nature of distribution network utilisation.



Figure 1. UK Power Networks' vision

Why flexibility?

Our vision is of a dynamic distribution system, with electricity demand and supply flexing in response to distribution-level conditions and wider market signals. We will see market-based solutions incentivising customers to utilise available network capacity efficiently, supplemented with traditional network reinforcement to deliver the lowest costs for consumers overall. This will lead to a smarter and more highly utilised distribution network, with faster and cheaper access for the Distributed Energy Resources (DERs) to achieve Net Zero.

In April 2023 we established an independent Distribution System Operator (DSO), delivering clear accountability and transparency for how we unlock capacity to connect more low carbon technologies in a timely and cost-effective way. A key role of the DSO is the development of flexibility markets. In our RIIO-ED2 Business Plan, we committed to market testing all future network needs by taking a flexibility and energy efficiency first approach.

We have proven that flexibility works technically and commercially. In a period of change and uncertainty, flexibility enables us to right-size our investment in the network and continue to connect thousands of charge points, heat pumps and renewables without needing to wait for additional network infrastructure. It is already delivering significant benefits to citizens, flexibility providers and UK Power Networks.

This procurement report sets out:

- What flexibility we tendered, contracted and dispatched in the 2023/24 regulatory period including information on service types, volumes and carbon impacts; and
- How we comply with the 31E licence condition by demonstrating transparency of flexibility procurement and use, as well as coordination across industry participants.

2. Flexibility Procurement and Use Summary

In this section, we provide a high-level summary of our procurement and dispatch activities in 2023/24 along with supporting commentary. More granular information can be found in the Appendix A, Supporting Data spreadsheet. We also publish post-tender reports and a monthly dispatch report on our [Open Data Portal](#).

Procurement in 2023/24

We ran two long-term tenders, multiple day-ahead tenders and two tenders to support planned outages during the 2023/24 Reporting Period. We tendered a total of 934 MW and awarded a total of 438 MW contracts¹.

The first long-term tender focused on topping up requirements for previously tendered zones. We tendered for 97 MW of need using the Secure, Sustain and Dynamic product across.

The second tender was run over Autumn 2023, following the annual refresh of our forecasting and the latest connection pipeline. The annual Methodology and Report explains our approach to identifying capacity needs and site selection for flexibility procurement. It was run over Autumn 2023/24 and covered the broadest range of needs with the opportunity for flexibility providers to choose which product best matched their needs. In the second tender we tendered for a total of 758MW of capacity across 452 flex zones with a contract length of up to three years. This procurement was for Secure, Sustain and Dynamic services across EHV, HV and LV networks to support both import and export-constrained zones. By the end of the reporting year, the contracts were awarded but the contracting process is still on-going and is expected to close in May 2024. The contracted MW are captured as “pending” in the supporting data worksheets.

Further information about the zones and the capacity required can be found on our [Tender Hub](#).

a). Comparison of MW awarded contracts for use during 2023/24 and dispatched MWh

Table 1 illustrates flexibility volumes we procured and dispatched in 2023/24. The table presents all MW capacity bid in or contracted to deliver in 2023/24 across all our tenders to date alongside MWh volumes of dispatched flexibility in 2023/24. Appendix A focuses on procurement activities in the 2023/24 period. As such, MW capacities presented there relate to tenders held within 2023/24 only.

Table 1. Contracted MW and Dispatched MWh for 2023/24

Product	Total MW contracted for 2023/24 delivery	Total MWh dispatched for in 2023/24
Total	906	7,818

The progress we have made is demonstrated by the fact capacity dispatched during 2023/24 grew over seven times, totalling 7,818MWh from a total of 1,092MWh the year before. This has been driven by the large pipeline of contracted capacity from our tenders as well as the support we provided to contracted flexibility providers. We understand the challenges that flexibility providers have faced in delivering their solutions. Therefore, we have taken a pragmatic approach when monitoring contractual milestones, giving providers time to get their solutions ready rather than penalising them or terminating contracts.

¹ For multi-year contracts with different capacities in different years, the capacity from the year with the greatest capacity is used.

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We have also increased our support for flexibility providers during the onboarding process to maximise the operational capacity by supporting them in achieving their commitments. We expect to continue this trend of significantly increasing dispatch volumes in regulatory year 2024/25 as outlined in our LC31E Procurement Statement.

b). Comparison of MW capacity tendered and awarded contracts in our 2023/24 tenders

Table 2. Tendered and awarded capacities in 2023/24

	Tendered MW	Contracted MW	Unmet MW	Zones tendered	# of zones needs met for delivery periods
TR8 - Summer 2023	97	5	92	22	2
TR9 - Autumn 2023	758	354	602	452	127
PO_Kingsnorth - 2023/24	15	15	0	1	1
PO_Thetford - 2023/24	34	34	0	1	1
DayAhead - 2023/24	30	30	0	1	1
Total	934	438	694	477	132

Table 2 and Figure 2 compare the volumes tendered with the volumes awarded in 2023/24 split between the tenders, as well as the unmet capacity, which is the summation of unmet capacity at individual constraint management zones. These are considered unmet because no contracts were awarded for the MW tendered. The last column of the table shows zones where requirements across all delivery periods are met through flexibility contracts. However, there are some zones where the requirements are partially met. In these cases sites have gone through further assessment, as set out in the DNOA methodology.

The contracted capacity and unmet capacity do not necessarily add up to the tendered capacity because the capacities vary across the seasons and the years. The tenders cover both summer and winter peaks across delivery years from 2024/25 to 2026/27 and the capacities show in the figure represent the maximum capacity.

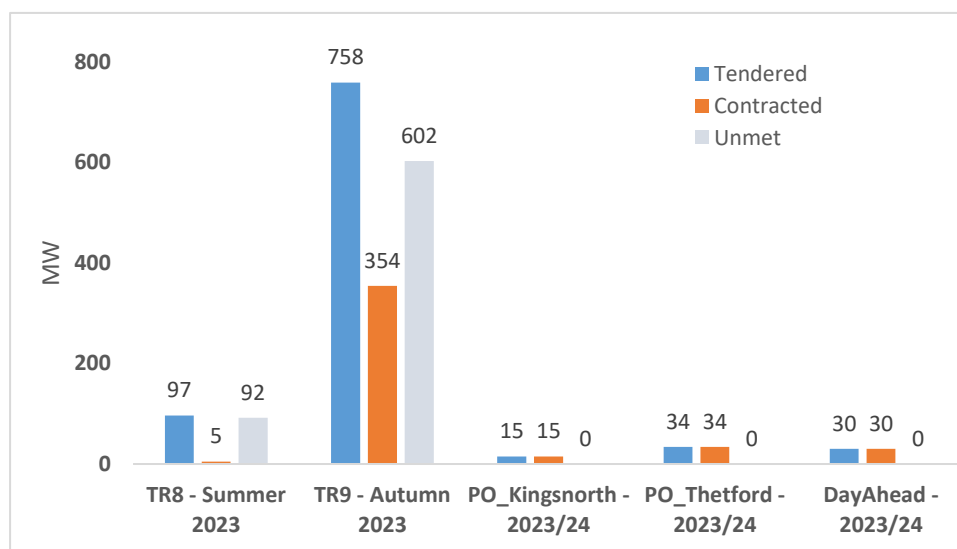


Figure 2. Tendered and awarded MW in 2023/24

We were able to increase competition in some zones by supplementing tendered volumes using our Dynamic product which is effectively a framework contract allowing competition and commitment at day-ahead.

The growth in participation has been driven by a number of factors. Firstly, each year we have learnt lessons on how to better engage with the flexibility providers; secondly we have built trust with a high proportion of flexibility providers who already have contracts with us now tendering for new zones. Finally, flexibility providers with distributed assets are starting to reach capacities close to our desired needs and their solutions are increasingly tested and proven when they bid in. Another positive from the most recent tender was that over 70% of the capacity that has been awarded contracts is for assets that are already existing (up from 48% last year), therefore we expect conversion from contracted to operational capacity to be higher.

As highlighted in last year's Flexibility Procurement Report, whilst market developments have been promising, flexibility providers continue to face challenges in translating contracted flexibility into operational flexibility ready for dispatch. This year we have focused on working with flexibility providers to mitigate the impacts of these as much as possible.

We have in particular continued to see the impact of the delay in EV growth compared to forecasts (both industry-wide forecasts of EV growth and aggregator forecasts of market share). This translates to lower-than-expected EV flexibility volumes but also indicates that EV demand growth is slowing, thus delaying the onset of network constraints. As such, contract delays are non-critical at this point in time and we expect to see operational flexibility volumes pick up in line with EV demand growth in future, helping us to mitigate constraints when they arise.

We have decided to maintain our policy of no penalties (other than lost revenues) in order to be supportive of delivering high volumes of participation by lowering barriers to entry. We continued to work with flexibility providers to encourage realistic growth forecasts through increased transparency and validation of assumptions of market growth and market share.

c). Changes to 2022/23 flexibility procurement plans

In our 2023 Flexibility Procurement Statement we described plans to run two tenders in 2023/24. The details of the first tender were already identified and so procurement was mostly in line with that outlined in the Statement. However, some adjustments were made based on the latest data from load monitoring where applicable. This tender launched in June 2023 as planned.

In the 2023 Procurement Statement, only a maximum capacity was indicated whereas the actual tender covered multiple years with various capacity needs over the years per zone. For reporting purposes, the forecasted maximum capacity is captured under the delivery year 2025/26 (last delivery year in the first tender) in the supporting data, this is the most reflective of reality as capacity requirement usually increases.

d). Locational breakdown of 2023/24 procurement

We became the first DNO to launch an Open Data Portal in November 2021, showing our commitment to improving transparency and quality of network data for our stakeholders. We continue to publish our Post Tender Reports and Dispatch data. Every tender, all information are published on our Market Platform and also on our Tender Hub. The Competition Data include flexibility services by product, zone and all associated postcodes relevant to the specific zone. Information regarding the first tender can be found [here](#) and the second tender [here](#).

As shown in

Figure 3, stakeholders can visualise our flexibility procurement activities on a map and can access a granular breakdown of tender results by location and product type. Furthermore, stakeholders can overlay other UK Power Networks data sets onto the Post Tender Report, such as the Embedded Capacity Register. We believe that this ability to combine and visualise multiple data sets will promote participation and innovation in flexibility markets.

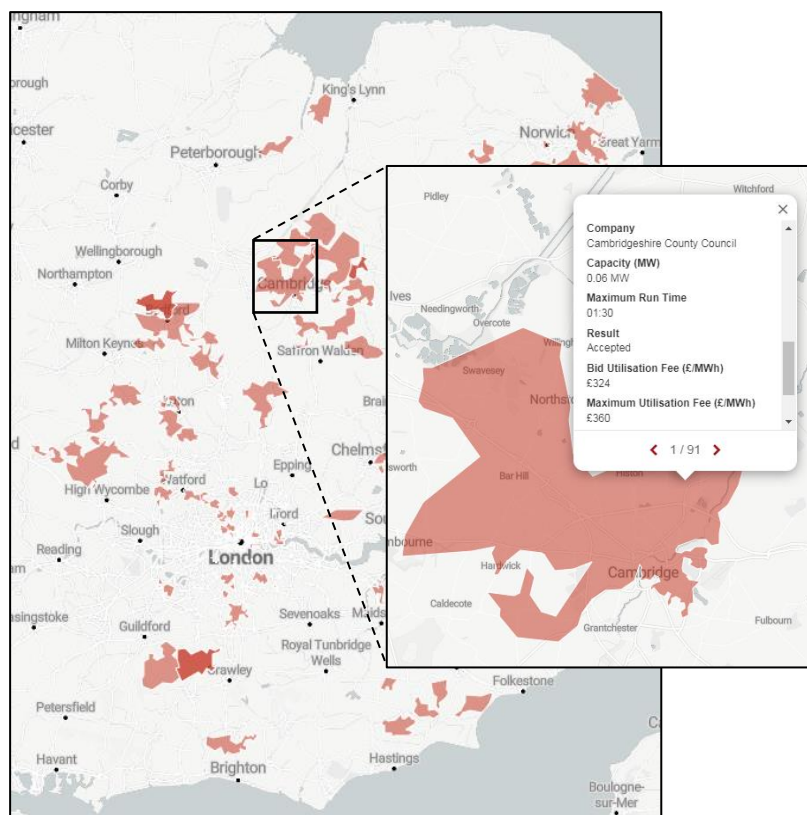


Figure 3: Post Tender Report on the Open Data Portal

e). Coordination with the ESO

Opening up participation across markets requires better coordination between the DSO and ESO. This is not a new concept, but implementation remains a major technical challenge. Over the last year we have tackled two key practical issues:

- Aligning service timescales so flexibility providers can more easily take part across multiple markets; and
- Delivering radically better visibility of which assets are available to provide flexibility, so the ESO and DSO can make procurement and dispatch decisions with more confidence and avoid conflicting actions.

We are also exploring how flexibility and wholesale prices interact to help manage the network and unlock greater flexibility participation.

Opening up participation in ESO markets and tackling whole system issues: the Megawatt Dispatch service

Our new Megawatt (MW) Dispatch service creates new opportunities for DERs to offer services to the ESO and connect sites sooner, while helping to tackle transmission constraints.

The service is supported by extensive, industry-leading data exchange with the ESO which provides up-to-date visibility of DER availability, enabling both the ESO and DSO to take actions with more confidence. As part of this we are sharing day-ahead data with the ESO, effectively allowing them to refresh the data shared a week ahead to get a more accurate forecast much closer to the service timescales.

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We are currently onboarding five DER customers assets, enabling customer projects totalling 38MW to connect five to 10 years sooner, with the ability to earn revenue in ESO markets. We have 41 further customer projects totalling 1.5GW in the pipeline to connect in the coming years.

To drive progress we continue to work with other DSOs and the ESO to establish standardised approaches for the procurement and utilisation of flexibility, thus creating an open and accessible market which delivers optimal whole system outcomes.

3. Stakeholder Engagement

Stakeholder engagement is crucial to informing product, process and system refinements and extending participation in local flexibility markets. We engage through multiple channels to reach as wide an audience as possible and engage in the most appropriate way for the desired outcome. During 2023/24, we spoke with a wide and varied audience, including, but not limited to DER developers, asset owners, energy efficiency stakeholders, and energy users.

Our 2023/24 engagement focused on raising awareness of flexibility opportunities, understanding flexibility customer needs, shaping new services and enhanced DSO:ESO coordination.

In-depth engagement has shaped our actions

We have a dedicated Flexibility Market's team of seven, the largest of any DSO, allowing us to provide more proactive support to flexibility providers. Key information is provided on our website, including guidance on how to participate and access to past and upcoming webinars. We regularly engage to provide information, identify issues and understand expectations.

Over the last year we spoke at 12 industry conferences to connect with customers in storage, renewables, electric vehicles, energy suppliers and industrial energy users, and hosted 3 events of our own. We estimate we reached around 1,200 people, helping us sign contracts with 15 new providers. Questions and feedback helped improve our communication and processes. For example, we promoted our provider friendly 10kW threshold more prominently after feedback that higher thresholds made it difficult to participate.

We continued our twice-yearly in-person Flexibility Forums (launched in July 2019) to understand stakeholder priorities, share our plans and progress, report back on how we have acted on feedback, and deepen relationships with providers. We ran webinars on specific commercial opportunities and held over 75 bilateral meetings to raise awareness of opportunities and understand flexibility provider needs. We carried out targeted engagement to shape initiatives such as day-ahead flexibility. We share a monthly flexibility newsletter with more than 400 people with an open rate of >60%.

We launched a new Flexibility Council with the 10 of the most experienced flexibility providers, to discuss key issues in greater depth than is practical at Flexibility Forums, which normally attract a broader range of stakeholders. Insights from the Flexibility Council helped us shape the requirements for day-ahead flexibility and our enhanced market platform.

Increasing domestic participation through proactive engagement with energy suppliers and aggregators

By the end of the 2023/24 regulatory year 1 million homes in our region were covered by our flexibility zones and therefore able to potentially participate in our markets. Building on the success of our work with Octopus, we reached out to other energy suppliers with significant customer bases to understand their appetite to provide flexibility and identify any barriers we could help address. This resulted in us signing contracts with British Gas and Ovo, which together with Octopus, supply energy to more than 50% of domestic customers in the UK.

In our view not enough households with low carbon technologies are benefitting from smart tariffs or working with aggregators. We are therefore encouraging more EV and heat pump owners to get involved in flexibility by promoting flexibility to customers interested in connecting an LCT when they visit the UK Power Networks website and via email once they are connected. We are now sending emails to thousands of households every month.

Opening up opportunities for energy efficiency and widening participation

We trialled offering a top-up payment to secure flexibility from customers on the Priority Service Register. We continue to offer our Peak Reduction product for energy efficiency solutions, and worked closely with Camden Council and Utilita to encourage and reward energy efficiency measures at 58 social housing households.

Standardise and enhance the customer experience across GB

Greater standardisation across DSOs gives flexibility providers with portfolios across Britain a more consistent and efficient experience. We have chaired the ENA Open Networks programme since 2021. We currently lead or co-lead five of the ten Open Network's working groups, including co-leading the Products and Stacking working group with the ESO. We have fed in learning from our practical experience and challenged others where greater urgency and alignment is needed. We have also proactively worked with the ESO and Elexon to enable a smooth transition of Open Network's outputs to the Market Facilitator once they are established. We have driven key outcomes:

Products

- We have revised the descriptions for our products for our next tender (in May 2024) to align with common definitions agreed under Open Networks and included clear descriptions on our website
- >99% of our flexibility requirements are requested through three standard products. The exceptions relate to some flexibility procured to support outage management, which has more specific requirements. We intend to standardise this as we learn more from doing.

Processes

- The first DSO to implement the standard registration process.
- All of our pre-qualification requirements relate to the core standardised questions.

Contracts

- We adopted the latest available version of the standard contract (V2.1) for our Tender Round 9 (October 2023). We made only minor changes to apply this as a framework contract to simplify subsequent tenders for providers
- We will adopt the 2024 update of the standard contract (V3) for our next flexibility tender.

Launched the first DSO day-ahead flexibility market

A day-ahead market has been flexibility providers' number one request through our customer surveys. We developed and launched the day-ahead product in collaboration with flexibility providers and the ESO. This market unlocks the potential to align with other day-ahead markets (e.g. the ESO) to enable revenue stacking, offers more frequent opportunities to bid, and provides more opportunities for providers who cannot commit to provide flexibility far in advance, such as industrial participants whose operational plans vary week-to-week.

We also delivered a two-week proof of concept with the ESO to identify the risk of conflicting ESO and DSO flexibility actions. We are integrating with the ESO's Single Market Platform to identify common meter points being used for ESO and DSO services.

4. Economic Viability

Our [Distribution Network Options Assessment \(DNOA\)](#) process governs the economic viability of the flexibility services procured. The DNOA Methodology is the framework that will help us explore all options, including flexibility to deliver a reduction of up to £410 million in load related expenditure during RIIO-ED2 in a transparent manner. The DNOA suite of documents is published annually and provides transparency to the industry on the decisions we are taking to meet the future capacity needs across our South East, London and East of England regions over the next few years.

In our DNOA process, we identify future capacity needs based on the latest predictions of our Distribution Future Energy Scenarios (DFES) and our Best View scenario. We then source all the possible options to resolve our system needs, compare them and make a recommendation for the optimal solution. This work combines information from multiple publicly shared databases and is explained in the methodology document.

The information provided will inform our stakeholders, such as flexibility providers, Local Authorities, Ofgem, the Department for Energy Security and Net Zero and other interested parties about the developments on our network, presenting upcoming opportunities to participate in the flexibility market, providing transparency to policy makers about our internal governance and facilitating other stakeholders' development plans towards Net Zero.

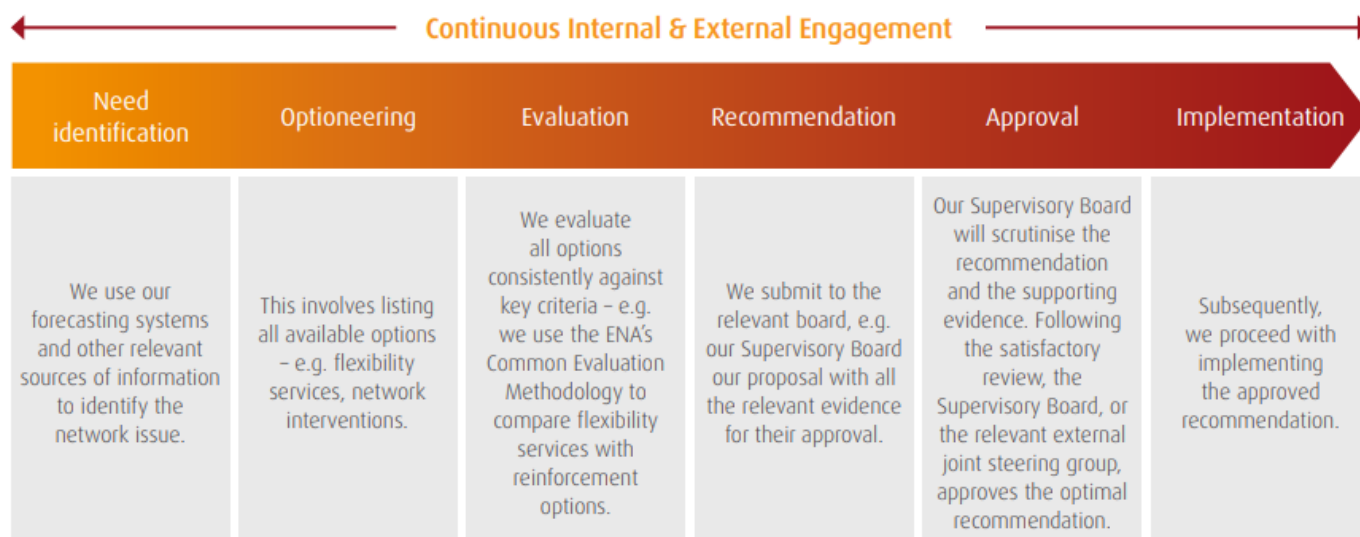


Figure 4. DNOA process overview

Ensuring flexibility services were the most economic solution

We undertake Cost Benefit Analysis (CBA) using the CEM and supporting MS Excel based tool, which was developed through the Open Network's project to deliver consistency in how DNOs evaluate different network investment options used to market test flexibility solutions. The CEM is based on the Ofgem CBA which we use to evaluate flexibility.

The methodology sets out to analyse the Net Present Value (NPV) of discounted cash flows of each solution. The difference between the NPV of the network reinforcement versus the NPV of the deferred reinforcement represents the amount that could be spent on flexibility services to achieve the deferral. The simplified schematic below shows this calculation where reinforcement has been deferred into year four.

The CBA models the totex (total expenditure) cash flow whereby a proportion of the expenditure is returned as revenue in the year it is incurred and the rest is returned over a longer timeframe in future years. The CEM tool also enables consideration of multiple scenarios and deferral periods.

	NPV	Year 1	Year 2	Year 3	Year 4
Baseline	NPV _{Baseline}	Reinforcement			
Deferral	NPV _{Deferral}				Reinforcement
Flexibility budget	NPV _{Deferral-Baseline}	Flex	Flex	Flex	

Figure 5. Illustration of the CEM CBA methodology

The flexibility budgets were converted into indicative prices to help the market translate value into offers by dividing the budget by the required availability and utilisation volumes. These volumes were determined from site-specific load profile analysis and forecasts. The site specific budgets and prices resulting from the CBA process can be found in the Revenue Ranges spreadsheet which we [published to the market](#) ahead of the tender to increase transparency and help inform flexibility business models.

Assessment of competitive bidding

We publish our bid assessment methodology for the Secure and Sustain products within the participation guidance on our website. The assessment of bids seeks to meet the volume requirement, at a cost that is within budget and as economically as possible as shown in .

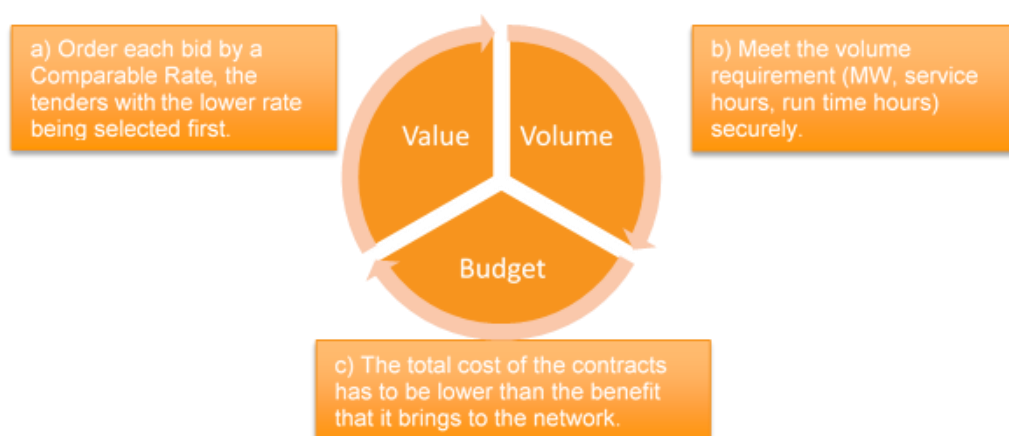


Figure 6: Bid assessment process

The comparable rate (in £/MWh) is derived from the availability fee and utilisation fee as bid in by providers and allows comparison between bids. The detailed formulation can be found in the participation guidance or the contract terms. As an example to illustrate this methodology we provide a spreadsheet attachment detailing the bid assessment carried out for one constraint management zone in Appendix B.

For the Dynamic service, providers set their utilisation price. Flexibility providers can change their price on a daily basis provided that it always remains below the site-specific ceiling price derived through the CBA. This ensures that when we dispatch, the flexibility provision is efficient relative to the reinforcement counterfactual. Where we have more than one Flexible Unit (FU) in a flexibility zone, we will dispatch FUs in price order subject to security of supply and operability considerations (see Figure 5). This merit order approach to dispatch encourages providers to compete on utilisation price, thus driving further efficiencies.

For the LV zones, we applied a fixed price based on deferral of typical LV reinforcement costs set at an asset level. This pricing strategy is intended to simplify participation for small-scale flexibility providers due to the small capacities required at an LV level.

5. Carbon Reporting

Off the back of Action 3.6 of the Smart Systems and Flexibility Plan 2021² a working group, which we lead, was developed within the ENA Open Networks project to develop consistent methodologies for carbon reporting across all networks and system operators. We developed the first standardised methodology in 2022 (Product 7)³ together with network licensees and the ESO with guidance from BEIS and Ofgem and in consultation with the industry. This was based on existing best practice carbon accounting methodologies.

The emission factors incorporate operational impacts (direct emissions and consequential offset in grid generation) varying by the technology type. The results are presented in Table 3. For example, using gas generator to address demand constraints result in an overall net positive carbon emission but the opposite is true if the same asset is used to address generation constraints. Furthermore, the calculation does not consider the carbon impact of avoided or deferred network infrastructure. Since flexibility enables reinforcement to be deferred or avoided, there would be an additional carbon saving.

We calculate the total emissions over the last year by multiplying the energy delivered following a dispatch by the emissions factor.

Table 3: Carbon impact of flexibility services actions in 2023/24

Demand					
LC31 Technology Categorisation Emissions	Technology	Requested energy (MWh)	Delivered energy (MWh)	Direct impact kgCO ₂ e	Consequential impact kgCO ₂ e
Fossil - Gas	Gas - Recip	3,429	1,134	647,063	-276,020
Stored Energy (all stored energy irrespective of the original energy source)	EV	171	32	-7,727	7,727
Stored Energy (all stored energy irrespective of the original energy source)	Battery	305	226	62,765	-54,919
Demand	Demand	23	13	-3,178	680
Sub-total		3,928	1,405	698,922	-322,532
Generation					
LC31 Technology Categorisation Emissions	Technology	Requested energy (MWh)	Delivered energy (MWh)	Direct impact kgCO ₂ e	Consequential impact kgCO ₂ e
Fossil - Gas	Gas - Recip	52	40	-22,636	9,656
Demand	Demand	2,916	2,362	574,850	122,958
Solar	Solar	424	281	0	68,360
Wind	Wind	499	349	0	85,004
Sub-total		3,891	3,032	552,214	285,978
TOTAL		7,818	4,437	1,251,137	-36,553

² Smart System and Flexibility Plan - <https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021>

³ [ON22-WS1A-P7 Carbon Reporting Methodology Version 2.0 \(Sep 2023\) \(energynetworks.org\)](#)

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In order to allow for year-on-year comparison please see Table 4, which is calculated on the same basis.

Table 4: Carbon impact of flexibility services actions in 2022/23

LC31E Technology Categorisation Emissions	Technology	Requested energy (MWh)	Delivered energy (MWh)	Direct impact (kgCO ₂ e)	Consequential impact (kgCO ₂ e)
Fossil - Gas	Gas - Recip	1,074	536	305,494	- 139,058
Stored Energy (all stored energy irrespective of the original energy source)	EV	17	15	- 3,956	3,956
Demand	Demand	1	1	- 215	46
TOTAL		1,092	552	310,324	- 135,056

As presented in the table below, it is worth noting that despite an increase in total carbon emissions there was a 14% reduction in carbon emissions per MWh delivered from 2022/23 to 2023/24, from 318 kgCO₂/MWh to 274 kgCO₂/MWh. A significant driver of this reduction in carbon emissions was the increased utilisation of energy storage technologies, particularly from standalone batteries and Electric Vehicles in response to demand constraints.

Table 4. Carbon emissions per energy delivered across the last three years

Reporting Year	Delivered energy (MWh)	Net impact (kgCO ₂)	kgCO ₂ /MWh
2023/24	4,437	1,214,583	274
2022/23	552	175,268	318
2021/22	308	90,240	293

Based on our contracted technology type mix we are projecting a further reduction in carbon intensity over time as more demand side response flexibility comes online in future years thereby reducing the proportion of gas as a percentage of total contracted capacity.

6. Key Documents and References

We have compiled this Procurement Report as part of reporting requirements under SLC31E. We welcome any questions the reader may have on its contents. Please send these to flexibility@ukpowernetworks.co.uk.

Key documents

RIIO-ED2 Business Plan	https://ed2.ukpowernetworks.co.uk/#business-plan#
Long-Term Development Statement and Network Development Plan	https://ukpowernetworks.opendatasoft.com/pages/ltds_ndp_landingpage/

Key websites

Flexibility Hub for all market information	https://dso.ukpowernetworks.co.uk/flexibility/tender-hub
Open Data Portal	https://ukpowernetworks.opendatasoft.com/pages/home/
EPEX SPOT – Localflex	https://www.localflex.co.uk/home
Embedded Capacity Register (ECR)	https://www.ukpowernetworks.co.uk/electricity/distribution-energy-resources/the-embedded-capacity-register

Engagement

Flexibility Forum	https://dso.ukpowernetworks.co.uk/upcoming-events?types=past-events
DER and Customer Forum	https://www.ukpowernetworks.co.uk/engaging-with-our-connections-customers

Appendix A:

We attach detailed procurement and dispatch information for the reporting year 2023/24 in spreadsheet format as required by Ofgem for the LC31 Procurement Report.

Appendix B:

We attach a worked example of the bid assessment we carried out.