



SSEN DISTRIBUTION FLEXIBILITY SERVICES

Procurement Report (2023-2024)

29/04/2024



Scottish & Southern
Electricity Networks



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EXECUTIVE SUMMARY

Scottish and Southern Electricity Networks (SSEN) Distribution is committed to delivering a safe, reliable supply of electricity to homes and businesses through infrastructure that aligns with and enables a just and fair transition to net zero, in line with UK and Scottish Governments' net zero commitments.

SSEN Distribution which is made up of our two licenced areas, Southern Electric Power Distribution (SEPD) and Scottish Hydro Power Distribution (SHEPD), follows a 'Flexibility First' approach, prioritising Flexibility Services and Flexible Solutions (such as Access Products) as the initial consideration in network management. The use of flexibility enables improved efficiency through greater utilisation of existing and new network assets. The plan for developing and advancing these tools is detailed in the Flexibility Roadmap¹, while their operational procedures are outlined in the Operational Decision-Making Framework².

SSEN Distribution strategically procures flexibility to efficiently invest in the network, leading to benefits for customers. In 2023/24, SSEN Distribution aimed to increase the overall market liquidity, particularly by engaging aggregators to diversify their contracted portfolio, which historically relied heavily on discrete assets. This was achieved through the implementation of Overarching Agreements and a bidding window process, streamlining contracting across multiple zones and locations. 8 different providers have been successfully signed to their Overarching Agreement: 8 in Southern Electric Power Distribution (SEPD) and 3 in Scottish Hydro Electric Power Distribution (SHEPD).

In 2023/24, SSEN Distribution tendered 2082 MW, contracted 706 MW, availability requested was 1848 MWh and we dispatched 554 MWh of flexibility, across both our licence areas with 18 new service contracts awarded. The tendered zones reflect the specific Secure services³ contracted for. As part of the Global Call initiative, Dynamic and Restore services were sought across the network. Overall, for specific requirements, the number of zones fully contracted for all required tender years was 5, a substantive increase from last year.

Flexibility Service dispatch increased in 2023/24, facilitated by using Flexible Power to issue instructions through an Application Programming Interface (API). Across 6 Southern Constraint Managed Zones (CMZs), 180.69 MWh of Secure Services were dispatched. Furthermore, in the SHEPD License area, consistent with the previous year, a total of 312 MWh of the Sustain service was utilised in Logie Pert. This allocation helped mitigate the risk of overloads from over-generation during low-demand summer periods. In Islay, 21.75 MWh of operational-led Secure service was dispatched to support planned outage work, while an additional 39.7 MWh of the Restore service was utilised to address unforeseen network outages.

SSEN Distribution are working with a broad stakeholder community to facilitate and grow Flexibility Services. Liquid markets are created by articulating clear needs and reducing entry barriers. For SSEN Distribution, this means making sure processes are clear and straightforward, and giving the market as much certainty around requirements as possible. The utilisation of Flexibility Services is made clear through the Operational Decision Making (ODM) framework, which was developed in consultation with stakeholders. SSEN Distribution ensures transparency by openly sharing processes and resources on their website, ensuring accessibility for all.

SSEN Distribution continues to consider how Flexibility Services can aid a Just and Fair Transition. SSEN Distribution is supporting the development of HOMEflex as part of their innovation portfolio to foster an equitable and transparent energy market, prioritising fairness for domestic energy customers and small businesses. Further details on HOMEflex and the code of conduct can be found in the innovation portfolio⁴.

1 <https://ssen.tractivity.co.uk/images/blob/ac891aaa-7036-4ec1-9e9e-cb33fdfe50c9/SSEN-flexibility-roadmap-draft-0.2.pdf>

2 [ssen-dso-odm-framework-update-march-2024.pdf](#)

3 [Flexibility Services - SSEN](#)

4 [Household Or Microbusiness Energy flexibility \(HOMEflex\) SSEN | SSEN Innovation \(ssen-innovation.co.uk\)](#)



1 INTRODUCTION

SSEN Distribution was the first UK Distribution Network Operator (DNO) to introduce Flexibility Services in 2018, realising significant benefits quickly whilst continuing to innovate and build the capability to scale operations.

From 2019 to 2024, we have successfully dispatched over 14.5 GWh of Flexibility Services and reduced our carbon emissions by 9,173 tonnes of CO₂. We have maximised the use of flexibility services from low carbon assets as an alternative to diesel generation for maintaining the supply of electricity during planned or unplanned outages. In the past year, the main area of development has been services used to defer and potentially avoid the need for network reinforcement.

Across our two licensed network areas, Scottish Hydro Electric Power Distribution plc (SHEPD) in the North of Scotland and Southern Electric Power Distribution plc (SEPD) in Southern England, SSEN Distribution identifies potential opportunities for the procurement and deployment of Flexibility Services by ascertaining areas of the existing network where we foresee potential benefit by deferring reinforcement using flexibility. The area connected to the network, where changing power flows will alleviate an overload, are known as Constraint Managed Zones (CMZs). The services and locations that we are seeking Flexibility Services from are published on both our SSEN Distribution webpages and communicated with Flexible Service Providers through webinars, email communications, and our current procurement platform (Delta).

The purpose of this report, as required under Standard Licence Condition 31E, is to provide an update to our stakeholders on our procurement and use of Flexibility Services for the period 1 April 2023 to 31 March 2024. Specifically, it details the Flexibility Services that we have tendered for, contracted, and dispatched over the year against the forecast view set out in our 2023/24 Flexibility Service Procurement Statement, published in March 2023. By publishing this looking-back report each year, we can track and capture our progress and developments, share what has worked well and where further improvements are warranted, and provide a clear overview of the processes and methodology used.

Data tables pertaining to the services tendered for, contracted, and dispatched in 2023/24 can be found in our Document Library⁵ which support the information in this document. We have also published the following reports that further support the work we are doing to increase the use of Flexibility Services to efficiently manage our network and achieve wider objectives to deliver net zero through a co-ordinated and economical distribution system:

- Our Flexibility Procurement Statement⁶, which sets out our latest forecasts for Flexibility Services procurement for the year commencing 1 April 2024;
- Our Long-Term Network Development Statement⁷ (or LTDS), which sets out our network plans for next five-year period;
- Our Open Data Portal⁸ which provides a single point of access to all the data that SSEN Distribution publishes providing visibility of our performance.
- Our Network Development Plans (NDPs)⁹ build upon the LTDS to set out our longer-term network plans and indicate potential areas of network constraint and opportunity for Flexibility Services over the long-term horizon.

5 [Flexibility Services Document Library - SSEN](#)

6 [ssen-c31e-flexibility-services-procurement-statement-2024.pdf](#)

7 [Long term development statements \(LTDS\) - SSEN](#)

8 [SSEN Distribution Data Portal](#)

9 [Network Capacity Information - SSEN](#)



We are always keen to receive feedback from stakeholders on what works well, but also on any aspects of this report that could be improved in future years. Contact details are provided at the end of this report.

1.1 Year Highlights

- 554 MWh of flexibility dispatched.
- Relaunch of the Dynamic Purchasing System (DPS)¹⁰ with a greatly simplified commercial and technical pre-qualification. As well as being easier for providers, this gives us insight into market capacity/capability which feeds into planning and strategy.
- Increased engagement with stakeholders, in particular one-to-one meetings with potential providers.
- Increased focus on identifying and procuring flexibility to defer or avoid reinforcement, with a good response to the tender.
- Adoption of Open Network recommendations from all technical working groups.
- SSEN Distribution were the first providers who dispatched from Flexible Power, for the operation of Secure services.
- Progress on the HOMEflex project with the Association of Decentralised Energy (ADE); establishing a code of conduct for flex providers contracting with domestic customers.
- 2082 MW of flexibility requirements tendered for with 706 MW contracted.
- Implemented the use of Overarching Agreements, with 11 of these contracts signed across 9 different providers.

¹⁰ [Scottish and Southern Electricity Networks – Dynamic Purchasing System for Constraint Managed Zones \(delta-esourcing.com\)](#)



2 FLEXIBILITY PROCUREMENT AND USAGE

This section explains what flexibility products we have used and procured over the past year. It also compares this to our previous Flexibility Service Procurement Statement¹¹, highlighting and explaining any changes.

2.1 Overview of Flexibility Products

The use of our network can be controlled through Flexibility Services, Access Products and price signals. Our Flexibility Roadmap¹² explains how these tools are used to maximise network use and improve network efficiency. As all Distribution System Operators (DSOs) in the UK procure Flexibility Services, we use a standard group of products to ensure participation in multiple DSO markets is straightforward for providers with assets in multiple areas. These standards are evolving to reflect the changing needs of Flexibility Services.

In 2023/24 we procured four active power services over the previous year: Sustain, Secure, Dynamic and Restore. These services align with the Open Networks Service Definitions¹³ and are defined by what network need a service is trying to resolve.

	Pre-Fault	Post fault
Utilisation Payments	Sustain Defer/avoid reinforcement by peak lopping at times of high forecast load under normal running conditions.	Restore Required to support restoration activities following an unplanned power outage.
Availability and Utilisation Payments	Secure Defer/avoid reinforcement by peak lopping at times of high forecast load under First Circuit Outage conditions. OR Alternative to network reconfiguration/generators for planned works.	Dynamic Support for network restoration in cases of secondary faults occurring during planned works.

Figure 1: Standard Flexibility Services.

The ENA (Electricity Network Association) Open Networks Standardisation of Products working group¹⁴ developed new products with greater clarity around specific aspects of each service. This will mean there is consistency between all DSOs on products with a particular name, which we fully support. These services can be seen in Figure 2.

¹¹ [ssen-c31e-flexibility-services-procurement-statement-2024.pdf](#)

¹² [SSEN-flexibility-roadmap-draft-0.2.pdf \(tractivity.co.uk\)](#)

¹³ [ON-WS1A-P3 Active Power Services - Final Implementation Plan-PUBLISHED.23.12.20.pdf \(energynetworks.org\)](#)

¹⁴ [https://www.energynetworks.org/assets/images/2023/Aug/on-flexibility-products-alignment-\(feb-2024\).pdf?1711357255](https://www.energynetworks.org/assets/images/2023/Aug/on-flexibility-products-alignment-(feb-2024).pdf?1711357255)



We initiated our Global Call for Flexibility in September 2023, and from this procurement round onwards our service terms were updated to allow alignment with these new standard products. The limited change in these definitions since this process has enabled the Overarching Agreements to be signed with both terms included allowing the new products to be used immediately. The Flexibility Service Procurement Statement includes this mapping table and explains how the existing and new products will coexist. The February and March 2023 Bidding rounds are reported under the names in Figure 1, but align with the new definitions in Figure 2, with both names included in the Overarching Agreements to support Flexibility Service Providers (FSPs) with the transition to the new products.

	Product	Description	Decision timescales	Payment
 Flexibility service products	Peak Reduction	This product seeks a reduction in peak power utilised over time. This response can manage peaks in demand.	<ul style="list-style-type: none"> ■ Utilisation Instruction: At Trade 	Utilisation
	Scheduled Utilisation	In this product, the time that flexibility is delivered has been pre-agreed in advance with the provider.	<ul style="list-style-type: none"> ■ Utilisation Instruction: At Trade 	Utilisation
	Operational Utilisation	This product allows for the use case where the amount of flexibility delivered is agreed nearer to real time.	<ul style="list-style-type: none"> ■ Utilisation Instruction: Real Time or Week Ahead 	Utilisation
	Operational Utilisation + Scheduled Availability	This product procures, ahead of time, the ability of an FSP to deliver an agreed change following a network abnormality.	<ul style="list-style-type: none"> ■ Availability Refinement: Not allowed ■ Utilisation Instruction: Real Time or Day Ahead 	Availability + Utilisation
	Operational Utilisation + Variable Availability	This product allows for DNOs and the ESO to procure a level of contracted capacity, but then refine the requirements in terms of availability closer to the event.	<ul style="list-style-type: none"> ■ Availability Refinement: Week Ahead or Month Ahead ■ Utilisation Instruction: Real Time or Day Ahead or Week Ahead 	Availability + Utilisation

Figure 2: New flexibility products used for procurement activities from 2024 onwards according to ENA standardisation.



2.2 Summary of Procurement

In 2023/24 we focused on procuring where there was a specific need, typically for maximising network utilisation ahead of reinforcement, in some cases allowing reinforcement to be deferred or avoided. We also looked to procure Dynamic and Restore services across the region, to provide more options to manage unplanned events. Table 1 below shows some key highlights of procurement and dispatch of flexibility services from the 2023/24 year.

Table 1: Flexibility Services procurement and usage summary.

Procurement Stage	Name	Value	Description
Requirements	Projected Service Procurement as per 2023 Flexibility Service Procurement Statement	29	Total number of services projected to be tendered, excluding those on the “may retender” list.
	Total capacity tendered for	2082 MW	This counts all volume requested, and therefore counts some volume multiple times where initial procurement activity was unsuccessful in achieving the full requirement. Also included is where there are one year contracts that might be extended. Also uncounted is the request for Dynamic and Restore volumes that formed part of our Global Call initiative and were uncapped.
Contracting	Total new capacity contracted in reporting year	706 MW	This number includes 232 MW that was accepted in previous years but contracted in 2023/24. Also included are contract extensions and Dynamic and Restore contracts that were uncapped requirements.
Dispatch	Expected dispatch in reporting year (from Flexibility Service Procurement Statement)	340MWh	This figure did not include the later contracted Secure contracts.
	Total dispatch in reporting year (MWh)	554 MWh	Mainly Sustain generation curtailment and DTD/GTU Secure service in SEPD. This figure includes all service contract types.
	Needs not met in reporting year (MW)	1766 MW	Shortfall based on max bid capacity and max required capacity over term of contract. This number is high because of our high requirement in the Fleet bidding round in



			February 2024. For the first year of the requirement, we successfully accepted bids for 74% of the requirement. However, issues with bidding validity resulted in all Spring and Autumn volume being unfulfilled and this will be included in the next bidding round.
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2.3 Services Tendered & Contracted

In 2023/24, we completed four procurement activities. First the spring tender round, using bi-lateral contracts, this was completed in line with our Flexibility Service Procurement Statement. In line with our plans, we investigated and then implemented a process for transitioning to the use of Overarching Agreements (referred to in the previous Flexibility Service Procurement Statement as Framework Agreements) for our Autumn tender period.

Overarching agreements allow us to run 'mini-competitions' for contract award, separate to volume and pricing activity that forms a 'bidding round'. This allowed us to speed up contracting and complete a better volume of procurement. We completed one mini-competition, starting in Autumn 2023. This was followed by two bidding rounds for those who had been awarded Overarching Agreements in January and February 2024. An additional mini-competition commenced in March 2024 at FSP request, and Overarching Agreements under this procurement activity will be awarded in April 2024 and therefore is not included in this report.

In some areas, we had an uncapped volume requirement. This is particularly true for our Global Call initiative where we allowed participants to bid for dynamic and restore services across all zones in both license areas. In the reporting data the CMZ for the responses to the Global Call is defined as the primary substation in which the asset is located. In some instances, there are minimum requirements. For example, we may request a minimum requirement of 1MW but we can then accept an uncapped volume above this requirement. In these instances, for the supporting data, we have counted the minimum tender requirement towards the totals in the supporting data.

Table 2 shows the volume we have procured in both the Spring tender round using bilateral contracts and our January and February bidding rounds compared to our forecasted requirements in the Flexibility Service Procurement Statement. Included in our Forecast CMZs are areas that were marked 'for consideration' where final requirements were still being assessed. Therefore, the contracted volumes we signed this year that are associated with historical 2022/23 tenders have been excluded from the data below.

Since the tenders for the Global Call initiative were not linked to defined CMZs, in Table 2 below the Global Call initiative is excluded from the CMZ count but is included in the volume totals (MW). The table counts each unique CMZ once. The volumes are total volumes rather than peak volumes. This means that if we have tendered or contracted in an area multiple times, these are counted separately. Moreover, if we have contracted for services across multiple years, each year is counted separately.



Table 2: Tendered and contracted services compared with 2023/24 Flexibility Service Procurement Statement.

Service	No. of CMZs			Volume of Flexibility Services (MW)		
	Forecast	Tendered	Contracted	Forecast	Tendered	Contracted
Sustain	17	0	0	0	0	0
Secure and Variable Availability + Operational Utilisation – Week Ahead response	18	10	8	0.2	647	280
Dynamic and Variable Availability + Operational Utilisation – Day Ahead response	31	15	2	143.5	718	192
Restore	31	15	1	143.5	718	1.95

2.3.1 May 2023 Procurement Rounds

Table 3 compares our previous Flexibility Service Procurement Statement where we identified as being an area we would procure, and how successful this was for our May tender round. For our May 2023 tender round we tried to procure for all the areas identified in the Flexibility Service Procurement Statement

Table 3: Tendered capacity, responses, contracted capacity and unmet need for each zone identified in our 2023/24 Flexibility Service Procurement Statement and tendered for in 2023/24. This focuses on our May 2023 procurement round.

Zone Name	Licence Area	Post Codes	Services	Identified Peak Capacity Required (MW)	Total Capacity Tendered for (MW)	FSP Responses (MW)	Contracted Capacity (MW)	Total Volume Unprocured (MW)
Alderton	SEPD	GL8, GL9, SN14, SN16	Secure	0.2	1	0	0	1
Andover	SEPD	SP10, SP11, SO20, SO21, RG28	Dynamic	15	75	8.07	0	75
Andover	SEPD	SP10, SP11, SO20, SO21, RG28	Restore	15	75	0	0	75
Abernethy	SHEPD	KY14, PH2	Dynamic	7	35	35.18	35	0
Abernethy	SHEPD	KY14, PH2	Restore	7	35	0	0	35
Dyce	SHEPD	AB41, AB21, AB23, AB15, AB42	Dynamic	6.5	32.5	2.6	0	32.5
Dyce	SHEPD	AB41, AB21, AB23, AB15, AB42	Restore	6.5	32.5	0	0	32.5
Elgin	SHEPD	AB56, IV30, IV31, IV32, IV36	Dynamic	27	135	4.52	0	135



Elgin	SHEPD	AB56, IV30, IV31, IV32, IV36	Restore	27	135	0	0	135
Lunanhead	SHEPD	DD11, DD4, DD8, DD9, PH11, PH12	Dynamic	25	125	1.44	0	125
Lunanhead	SHEPD	DD11, DD4, DD8, DD9, PH11, PH12	Restore	25	125	0	0	125
Lyndhurst	SHEPD	DD2, DD3, DD4	Dynamic	7	35	1.07	0	35
Lyndhurst	SHEPD	DD2, DD3, DD4	Restore	7	35	0	0	35
Milton of Craigie	SHEPD	DD1, DD3, DD4, DD5, DD7	Dynamic	17	85	2.56	0	85
Milton of Craigie	SHEPD	DD1, DD3, DD4, DD5, DD7	Restore	17	85	0	0	85
Nairn	SHEPD	IV12, IV2, IV36, PH26	Dynamic	10	50	2.48	0	50
Nairn	SHEPD	IV12, IV2, IV36, PH26	Restore	10	50	0	0	50
Oban	SHEPD	PA34, PA37	Dynamic	>1	>1	0.42	0	>1
Oban	SHEPD	PA34, PA37	Restore	>1	>1	0	0	>1
Ardtornish	SHEPD	PH33, PA80	Dynamic	>1	>1	0.01	0	>1
Ardtornish	SHEPD	PH33, PA80	Restore	>1	>1	0	0	>1
Lochailort	SHEPD	PH38	Dynamic	>1	>1	0.001	0	>1
Lochailort	SHEPD	PH38	Restore	>1	>1	0	0	>1
Redmoss	SHEPD	AB10, AB11, AB12, AB39, AB99	Dynamic	>1	>1	2.63	0	>1
Redmoss	SHEPD	AB10, AB11, AB12, AB39, AB99	Restore	>1	>1	0	0	>1
Arbroath	SHEPD	DD11, DD8, DD7, DD5	Dynamic	24	120	1.47	0	120
Arbroath	SHEPD	DD11, DD8, DD7, DD5	Restore	24	120	0	0	120
Charleston	SHEPD	DD1, DD2	Dynamic	>1	>1	0.87	0	>1
Charleston	SHEPD	DD1, DD2	Restore	>1	>1	0	0	>1

2.3.2 Implementation of Overarching Agreements

Up until the Spring 2023 tender, new FSPs signed bilateral contracts to provide flexibility services. These are one-to-one contracts between the DSO and the Provider containing all asset and pricing information pertaining to the bid. With the bilateral process, the contract negotiation and signature take place after the bidding process.

In 2023/24, we changed our procurement approach to have Overarching Agreements signed first, followed by bidding rounds for specific areas. Under this approach, contract signature and the provision of capacity and pricing information (the bidding window) are separate processes. This reduces the level of contracting requirements for FSPs as the overarching agreement, once signed it lasts for 8 years, as such, a new contract is not needed for every new bidding round. For FSPs to sign an Overarching Agreement they must respond to a mini-competition. We launched the first mini-competition as part of Global Call initiative in Autumn 2023, Table 4 shows the number of providers we responded and successfully were awarded a contract.

This has reduced contracting times. For instance, our August 2022 procurement round, using bilateral contracts, was fully contracted in February 2024, taking 18 months from start to finish. The Overarching Agreements have reduced this period to just 3 – 4 months and as the process becomes more established, we expect this to be further reduced.



The reduction in contracting timescales has been supported by implementing the industry standard Flexibility Service Agreements (FSAs) v2.1, which is aligned across all DNOs. This has reduced the difference between contracts and expected to further reduce with the implementation of v3.0.

This approach has received positive feedback from FSPs and we continue to look at ways to reduce market entry barriers.

Table 4: Contracted FSPs in each license area.

Licence Area	No. Of Contracted FSPs
SEPD	8
SHEPD	3

2.3.3 January and February Bidding Rounds

In our previous Flexibility Service Procurement Statement we identified the areas in Table 5 where we might procure Flexibility. It was anticipated these would form part of our Global Call requirements and feed into the January and February bidding rounds. In all areas we expressed requirements for Dynamic and Restore Services as part of our Global Call, with responses for dynamic services only in SEPD totaling 117 MW.



Table 3: Zones identified in the previous Flexibility Service Procurement Statement as potential candidates for flexibility, and the next steps we are taking.

CMZ Name	Licence Area	Services to be considered	Next Steps
East Bedfont	SEPD	Secure, Sustain, Dynamic and Restore	Included in May 2024 bidding round.
Upton	SEPD	Secure, Sustain, Dynamic and Restore	Asset solution determined as most optimal.
Bemerton	SEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Wimborne	SEPD	Secure, Sustain, Dynamic and Restore	Asset solution determined as most optimal.
Wareham Town	SEPD	Secure, Sustain, Dynamic and Restore	Flexibility required in 2030.
Calne	SEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Bruton	SEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Yattendon	SEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Gisla	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Insch	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Keith	SHEPD	Secure, Sustain, Dynamic and Restore	Asset solution determined as most optimal.
Port Ann	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Abernethy	SHEPD	Secure, Sustain, Dynamic and Restore	Included in May 2024 bidding round.



Scorradale	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Halkirk	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Tressady	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.
Inverbroom	SHEPD	Secure, Sustain, Dynamic and Restore	Assessment ongoing.

The January and February bidding rounds also included volumes we had unsuccessfully fulfilled, allowing FSPs who had not previously responded to contribute to our Flexibility Services, the majority of these were in our southern licence area. Table 6 shows the service requirements for our SEPD distribution licence area were advertised through the following tenders.

Table 4: Details of SEPD Flexibility Services tenders held in 2023/24.

Tender Ref.	Description	Services	PQQ Close Date	Bidding Window
SEPD Flexibility Services Tender May 2023 – 3 Zones	Uncapped generation turn up and/or demand turn down flexibility, to support planned outages.	Secure and Dynamic	The day communicated as the last date for submission was 30/04/23. The DPS remained open.	10/05/23 – 09/06/23
January 2024 Tender	Uncapped generation turn up and/or demand turn down flexibility, to support planned outages.	Secure, Dynamic and Restore	None	12/01/24 – 30/01/24
February 2024 Tender	Uncapped generation turn up and/or demand turn down flexibility, to support planned outages.	Variable Availability + Operational Utilisation – Week Ahead response, Variable Availability + Operational Utilisation – Day Ahead response, Operational Utilisation	None	15/02/24 – 29/02/24



2.3.4 West London

The West London area has experienced a rapid increase of requests for new electricity connections which has triggered constraints on the Distribution and Transmission network. Due to the longer lead time for Transmission reinforcement, there is a risk that SSEN Distributions ability to continue to facilitate new demand connections in a reasonable timeframe will be severely restricted. As part of efforts to address this challenge, we are exploring potential interim solutions, including flexibility measures with NGET and NESO to help accommodate incoming connection requests, whilst also ensuring network capacity remains within limits set by NESO.

In our previous Flexibility Service Procurement Statement, we had planned to run a tender for a sustain service across all six West London GSPs: Amersham, Ealing, Iver, Laleham, North Hyde and Willesden. We have revised this plan to have bidding windows for these areas in May 2025.

This allowed us to accelerate a tender for an Operational Utilisation + Variable Availability (Secure) service across the Fleet GSP. This area which is also experiencing a rapid increase in requests for new electricity connections, but which is less complex than the West London area, so allowed us to test the bidding process and the new products.

2.4 Needs Not Met

Following the shift in focus to procuring services to manage network deferral, our metric for measuring procurement success can be measured by needs not met. A breakdown of total unmet needs by CMZ and Service Type is available in the supporting data set in Table 7. Where there was no minimum tender requirement, this data has been excluded from the procurement analysis.

Table 5: Summary of unmet needs from tenders held in 2023/24.

Licence Area	Service Type	Spring 2023 Needs Not Meet MW	January 2024 Bidding round Needs Not Meet MW	February bidding round Needs Not Meet MW
SEPD	Sustain	N/A	N/A	N/A
	Secure and Variable Availability + Operational Utilisation – Week Ahead response	1	8	360
	Dynamic and Variable Availability + Operational Utilisation – Day Ahead response	75	N/A	N/A
	Restore and Operational Utilisation	75	N/A	N/A
SHEPD	Sustain	N/A	N/A	N/A
	Secure and Variable Availability + Operational Utilisation – Week Ahead response	N/A	N/A	N/A



Dynamic and Variable Availability + Operational Utilisation – Day Ahead response	608	N/A	N/A
Restore and Operational Utilisation	643	N/A	N/A

In the areas where needs were not met, this was due to low market liquidity and insufficient numbers of providers in those areas. Our Flexibility Roadmap¹⁵ has outlined some of the action we are taking to increase market liquidity and control of our network. One of these key areas is to increase our ability to complete short-term procurement and expand the number of FSPs through engagement.

2.5 Dispatch of Flexibility Services

We dispatch our Flexibility Services using the principles outlined in our Operational Decision Making (ODM).¹⁶ These are shown in in the figure below:

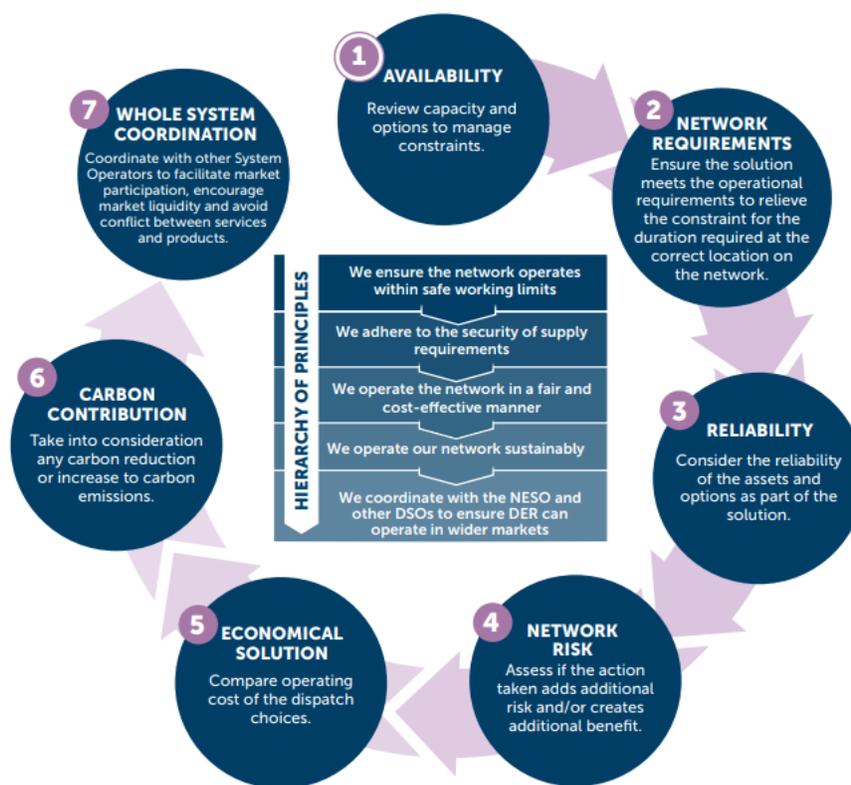


Figure 3: Operational Decision-Making Principles

¹⁵ [SSEN-flexibility-roadmap-draft-0.2.pdf \(tractivity.co.uk\)](#)

¹⁶ [Publications & Reports - SSEN](#)



Where there is a choice of FSP (i.e. where the procured requirement is higher than the needed for flexibility for a particular day), FSPs are assessed and dispatched based on a calculated weighting. This process allows the maximum number of FSPs to be dispatched and ensures FSPs with dominance in a certain area do not control the price in a zone. It also reduces the risk of a single FSP failure and spreads the benefits of Flexibility Services, thereby supporting a liquid market. We followed this process for all zones that we dispatched this year.

The Secure and Dynamic services we dispatched on 2023/24 follow the similar principle of the new product 'Variable Availability + Operational Utilisation' where an Availability instruction is issued after procurement. In 2023/24 we issued 1848 MWh of Availability Instructions. 99.5% of these were accepted by FSPs. All the services we use also have closer to real time utilisation instructions; 554 MWh were issued this year. FSPs have delivered 122.8% of these instructions, the over-delivery mainly due to Secure service in our SEPD area. The under-delivered events in our SEPD area are due to the lack of meter reading data from providers. A detailed breakdown of this can be found in Table 8, with more detail in the supporting data spreadsheet in our document library¹⁷.

Table 6: Dispatch and delivery summary.

Licence Area	Service Type	Maximum Availability (MW)	Total Availability Instructions (MWh)	Total Utilisation Instructions (MWh)	Number of times CMZ was instructed	Total number of under-delivered
SEPD	Sustain	N/A	N/A	N/A	N/A	N/A
	Secure	7.085	1826	180	364	65
	Dynamic	N/A	N/A	N/A	N/A	N/A
	Restore	N/A	N/A	N/A	N/A	N/A
SHEPD	Sustain	N/A	N/A	312	1	0
	Secure	1	22	21.75	2	0
	Dynamic	N/A	N/A	N/A	N/A	N/A
	Restore	N/A	N/A	39.70	4	0

Where providers do not accept an Availability Instruction there is no contractual impact, nor does it increase our analysis of their reliability. Where a provider does not deliver a Utilisation Instruction, this is seen as non-delivery under the contract. We are not applying any additional penalties for the providers failing to comply with a utilisation instruction, but the under-delivery performance will decrease earnings- for the providers who participate.

2.5.1 Sustain Services

We have one Sustain service under contract, this is for the Logie Pert CMZ in our SHEPD licence area. The location of this can be seen in Figure 4.

This Sustain service was initially procured in December 2021 and supports a constraint caused by over-generation. Under this contract, generator export is limited during summer months when demand is lowest and there is a risk of overload at maximum generation. The utilisation of this service in 2023/24 was 312 MWh which is in line with our anticipated forecast in the previous Flexibility Service Procurement Statement last year.

¹⁷ [Flexibility Services Document Library - SSEN](#)

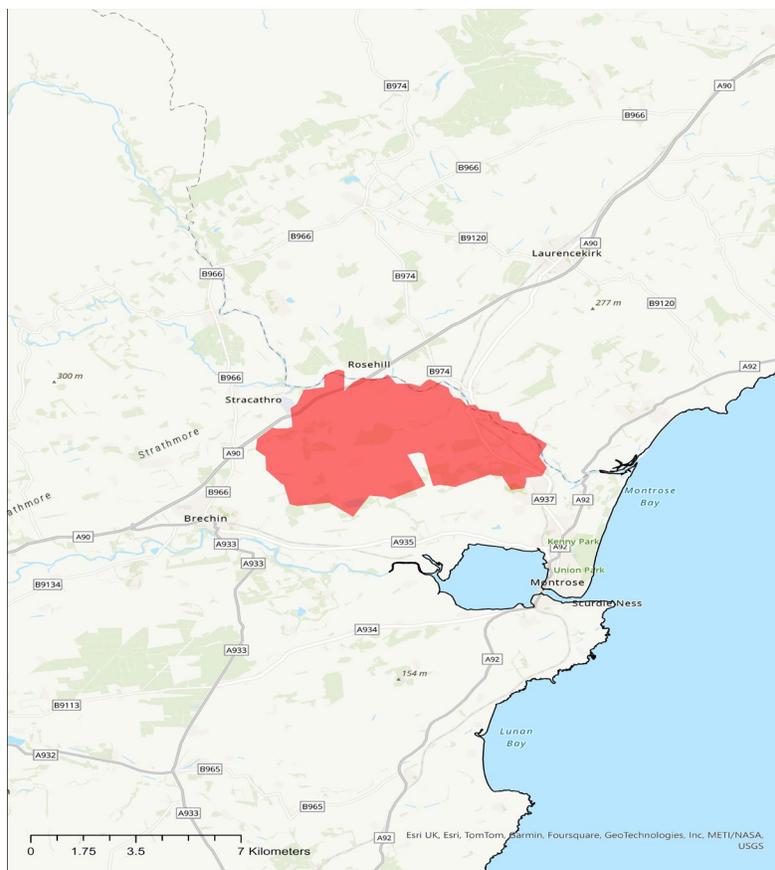


Figure 4: Logie Pert Sustain CMZ location in SHEPD license area.

2.5.2 Secure Services

The Secure service in our SHEPD license area is for Islay CMZ (see Figure 5), this was first contracted in 2022. This is an outage led Secure service, meaning it is only needed when some of the network is unavailable. In this case, the service was needed to support peak demand on two occasions over this year. Due to the nature of the service, it is difficult to forecast the use of it as it depends on when planned outages and faults occur, and whether this coincides with peak demand requirements.



Figure 5: SHEPD Secure services zones

The Secure services in our SEPD are new services, initial procurement activity was completed in 2022/23 for these areas but contracting did not complete until 2023/24. These areas all focus on the use of Flexibility Services to support the reinforcement of network, primarily around reinforcement deferral. In 2023/24, for the first time, we identified flexibility needs based on month-ahead availability and week-ahead utilisation load forecasts to manage the network capacity, avoiding potential overloads. The services are all demand turn down/generation turn up to manage the overload risk under First Circuit Outage (FCO) condition. Figure 6 shows the location of these CMZs. The delays in contracting mean forecasts for utilisation were not included in the previous tender. Table 9 shows the breakdown of these figures and the associated expenditure, the availability and utilisation price for Secure services on 2023/24 is £150/MWh and £200/MWh, respectively.

Table 7: Contracted volumes, dispatched volumes, and expenditure per CMZ.

CMZ	Contracted Volume (MW)	Dispatched Volume (MWh)	Expenditure (£)
Alderton	0.62	5.17	£2,273.95
Alresford	2.23	0	0
Denham	17.55	0	0
Egham	4.47	0	0
Faringdon	2.93	8.9	£5,329.62



Fulscot	53.79	0	0
Goring	1.67	0	0
Harvard Lane	3.02	7.07	£1,601.76
Stokenchurch	6.77	31.94	£11,592.06
Yeovil	22.34	121.45	£195,340.19
Yetminster	4.79	6.15	£2,129.16
Total	120.18	180.69	£218,267

There are some areas where there has been no dispatch of Flexibility Services. In these areas, the power flows on the network are lower than anticipated. This helps to highlight the option value of Flexibility Services where demand forecasts are uncertain as can support deferral of reinforcement in the network.

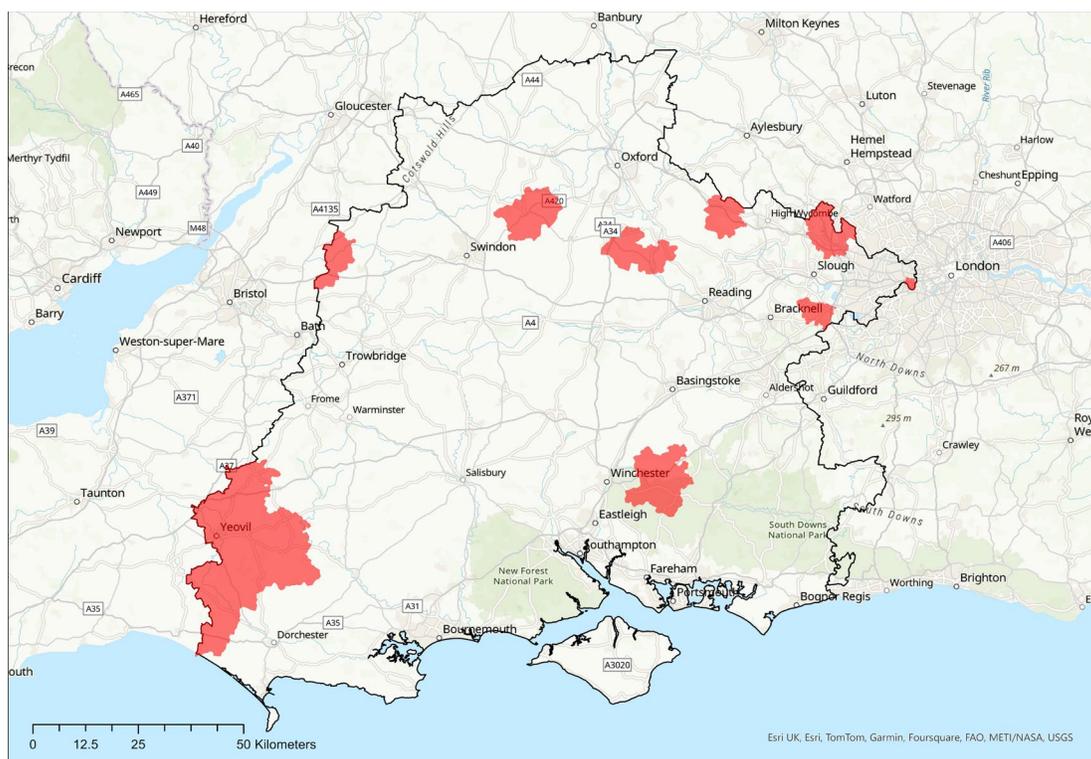


Figure 3: SEPD Secure service zones.



2.5.3 Dynamic Services

We did not dispatch Dynamic services in 2023/24. This is lower than the forecasted figure in our previous Flexibility Service Procurement Statement of 0.04 GWh. Dynamic services are used for planned and unplanned outages on certain parts of our network. The 0.04 GWh was based on historical usage of the services which were predominantly due to unplanned outages. In the year 2023/24 we did not take any planned outage and there were no unplanned events resulting in the need to dispatch Dynamic services to contracted FSPs.

2.5.4 Restore Services

The only Restore service we dispatched was Inver Hydro in our Islay CMZ (see Figure 5). There was a network fault condition, and this service successfully allowed us to reduce our diesel reliance. As this was an unplanned network event it was not forecasted

2.5.5 Services Coordination with the ESO

To mitigate the potential conflict between SSEN Distribution and Electricity System Operator (ESO) we shared our flexibility service schedule with the ESO on a weekly basis and detailed where and when we have flexibility to be dispatched. In 2023/24, we had no services conflicts with the ESO, so no additional action was required. More information about how we enhance the coordination with other DNOs and the ESO on network operation can be found in Section 3.4.

2.6 Procurement Timetable

This section maps performance against our planned procurement activities in 2023/24. The timetable in Figure 7 below shows our original planned calendar of tenders in 2023/24. They were all originally to deliver multi-year, bilateral contracts based on the industry standard Flexibility Services Agreement as we stated in our 2023 Flexibility Service Procurement statement, however, we were able to transition to overarching agreements¹⁸ by Autumn 2023, which was much sooner than we had anticipated.



Figure 4: SSEN Distribution planned procurement timings for 2023/24.

¹⁸ Please refer to section 2.7 for details and description of overarching agreements.



The May 2023 tender was delivered under the existing multi-year, bilateral contracts. The tender open and close met the timeline in Figure 7, however the contract awards have been delayed and one remains unsigned.

The October 2023 procurement round that we ran under the overarching agreement was split into a mini competition and then two bidding rounds – in January and February 2024, as shown in Figure 8. This is slightly different to the initial plan and was driven by the move to overarching agreements changing the timeline and process for Contract Award. The sections highlighted in yellow in Figure 8 are where the timelines have deviated from the original plan. Updated dates were published on our website, communicated through Delta eSourcing and communicated to providers via email.

The February 2024 bidding window was to procure flexibility services at Fleet Bramley. This was not part of our original procurement plans for 2023/24 but Fleet Bramley has become imperative due to being a constrained area, with a material amount of connection applications over the last 12 months and replaces the intended West London procurement activity. Having the overarching agreements in place allowed us to expedite our procurement process for Fleet Bramley.



Figure 5: Procurement timings achieved in 2023/24.

2.6.1 Load Managed Areas (LMAs)

Our 2023/24 Flexibility Services Procurement Statement stated that we would investigate how Load Managed Areas (LMAs) can be developed and evolved into a commercial service.

LMAs mandate the load profiles of storage heaters and water heating, proving highly effective in diversifying demand and offering consumers access to cheaper overnight tariffs. This successful load management strategy enabled us to defer reinforcing the SHEPD network, saving consumers significant costs.

With the electricity network evolving rapidly, the current method of implementing LMAs is limited as it is focused on overnight storage heating only. We have identified two potential commercial services that could support the removal of LMAs in some areas, currently called 'Demand Diversification Services.' In 23/ 24, in-person stakeholder workshops and multiple individual stakeholder calls were held to develop alternative commercial mechanisms. This ongoing work now forms part of our Flexibility Strategy and included in the roadmap.



3 STAKEHOLDER ENGAGEMENT

At SSEN Distribution, we recognise the importance of engaging with all our Stakeholders including FSPs, potential future FSPs, and those who will never directly participate such as consumer groups. Due to the diverse nature of these groups, it is helpful to consider the different information these stakeholders need, to explain how we are communicating with them.

3.1 Flexibility Strategy

We recognise our flexibility strategy is very important to all our stakeholders, and all these potential groups have knowledge and information that would enhance our flexibility strategy. Three key documents that share our flexibility strategy with stakeholders are:

1. Flexibility Roadmap
2. Operational Decision-Making framework
3. Seasonal Operability Report

In 2023/24 we consulted with stakeholders on our flexibility roadmap (March 2024) and our Operational Decision-Making (ODM) framework (February 2024).

3.1.1 Flexibility Roadmap

In our updated DSO Acceleration Strategy from October 2023, we pledged to unveil our Flexibility Roadmap¹⁹ and Future Market Vision in 2024. This was published for consultation in March 2024. These documents will inform FSP's and market stakeholders about SSEN Distributions approach to flexibility solutions and our future development focus.

Our Flexibility Roadmap outlines how we utilise flexibility solutions, such as access products and price signals, and details our view on the evolving policy landscape and the future of flexibility markets. The 2024 Plan sets out upcoming actions, including tenders for flexibility services, decision-making processes, and plans for a new flexibility market platform. These documents are part of our suite supporting the DSO transition, providing transparency on flexibility decision-making processes.

3.1.2 Operational Decision Making (ODM)

As mentioned previously, we are undertaking a lot of work to ensure that we make the best decisions as we drive towards our net zero target. Key to this is how we roll out our access products and flexibility services where they can play a role. We care about being transparent and keeping our stakeholders involved. We want them to have complete confidence in the decisions that we make. We have published our ODM framework which lays out decisions we make as we approach or are faced with an outage event on our network. The ODM allows us to consistently evaluate the wide range of options we have that we can use to resolve our system needs, irrespective of technology type or commercial arrangement.

3.1.3 Seasonal Operability Report (SOR)

The Seasonal Operability Report (SOR) is a quarterly report that we will produce commencing in 2024 which will highlight when and how we have applied our ODM and coordinated with the NESO. The report will highlight Key Performance Indicators (KPIs) on the planned and unplanned dispatch actions we have taken this quarter and the details of which we plan to take in the following quarter. We will include a narrative detailing our learnings and considerations that we are reviewing for new coordination scenarios.

¹⁹ [SSEN-flexibility-roadmap-draft-0.2.pdf \(tractivity.co.uk\)](#)



3.2 Market Engagement ahead of Tenders

It is important to us to engage with the market and ensure all providers that wish to participate are able to do so. Key to this is making the processes around procurement as streamlined as possible, whilst adhering to Utilities Contracts Regulations, but also making sure that providers have the information and motivation necessary to participate.

Before any large tender, we seek to engage all interested parties that own, operate or aggregate Distributed Energy Resources (DERs) to raise awareness of the opportunities. In 2023/24, our engagement focused on encouraging potential providers to register and pre-qualify on the Dynamic Purchasing System (DPS). This was an important stepping-stone towards the success we have achieved with FSPs signing the overarching agreement and having a single asset registration platform which will be implemented by August 2024.

Main engagements and channels for 2023/24:

- Spring 2023 – SHEPD Flexibility Tender Webinar - North (17th April 2023).
- Spring 2023 – SEPD Flexibility Tender Webinar - South (18th April 2023).
- SSEN Distribution Global Call Flexibility Webinar – (18th September 2023).
- Flexibility Strategy Webinar – (28th November 2023)
- Launch of ODM Consultation – (6th-26th February 2024)
- Launch of Flexibility Roadmap Consultation – (4th March 2024)
- Engagement events were advertised through the following social media channels: LinkedIn, Facebook, Twitter (x) & Instagram.
- General information on flexibility services shared with local authorities and community energy groups at regional capacity webinars.
- Tenders and requirements were shared on SSEN Distributions website²⁰ and via the Delta esourcing
- Ahead of mini-competitions, emails notifications were sent to all providers registered on the DPS.

3.2.1 Service Dates and Times

For Sustain and Secure service tenders, indicative service windows and seasons were provided through the relevant webinars and published on the Flexible Power map ahead of the tendering stage. The following service windows were published in 2023/24.

Table 10: Flexibility Services - SEPD Spring 2023 Service Windows.

Zones	Season	Service Windows
Alderton	Spring/Autumn	17:30 – 19:00

²⁰ [Flexibility Services - SSEN](#)



Table 11 : Flexibility Services - SEPD January 2024 Service Windows.

Zones	Season	Service Windows
Alderton	Spring/Autumn	17:30 - 20:00
Alresford	Winter/Spring/Autumn	17:00 - 18:00
Ashton Park	Winter/Spring/Autumn	15:30 - 22:00
Egham	Winter/Spring/Autumn	17:00 - 20:30
Faringdon	Winter/Spring/Autumn	15:00 - 22:00
Goring	Winter/Spring/Autumn	16:30 - 21:00
Harvard Lane	Winter/Spring/Autumn	16:30 - 22:00
Stokenchurch (AM)	Winter/Spring/Autumn	07:30 - 08:30
Stokenchurch (PM)	Winter/Spring/Autumn	15:00 - 22:00

Table 12: Flexibility Services - SEPD February 2024 Service Windows

Zones	Season	Service Windows
Fleet Bramley	Winter	17:00-19:00
Fleet Bramley	Winter	17:00-19:00
Fleet Bramley	Winter	16:30-19:30
Fleet Bramley	Spring Autumn	17:30-18:30
Fleet Bramley	Winter	16:00-20:00
Fleet Bramley	Spring Autumn	17:00-19:30
Fleet Bramley	Winter	15:30-20:30
Alderton	Spring/Autumn	17:30 - 20:00
Alresford	Winter/Spring/Autumn	17:00 - 18:00



Ashton Park	Winter/Spring/Autumn	15:30 - 22:00
Egham	Winter/Spring/Autumn	17:00 - 20:30
Faringdon	Winter/Spring/Autumn	15:00 - 22:00
Goring	Winter/Spring/Autumn	16:30 - 21:00
Harvard Lane	Winter/Spring/Autumn	16:30 - 22:00
Stokenchurch (AM)	Winter/Spring/Autumn	07:30 - 08:30
Stokenchurch (PM)	Winter/Spring/Autumn	15:00 - 22:00

Service windows are usually not known at the time of tender where contracts are needed for planned or unplanned outages.

3.2.2 How Information was Conveyed

The ways in which information and specific requirements were conveyed to providers are shown in Table 13.

Table 13: Information shared by procurement stage.

Procurement Stage	Information Conveyed	Timescales	Audience	Format and location.
Pre-Qualification	<ul style="list-style-type: none"> DPS (Procurement Process) Guidance. Flexibility Introductory Guide. Prequalification Evaluation Criteria. Sample Contract. DER Form (asset registration). 	Periodically updated, not linked to specific tender.	Potential providers and other interested parties.	Documents published online (SSEN Distribution website).
	Pre-qualification questions and Standard contract terms and conditions.	Periodic update, not linked to specific tender.	Potential Providers.	Document published on DPS.
Signposting/Pre-Tender Stage	Tender Dates.		Potential providers.	SSEN Distribution website and Delta esourcing.



	Constraint zone geographical areas.	At least 1 month before tender.	Potential providers.	Interactive map (SSEN Distribution website). Tender requirements documents with postcode information
	Service requirements per zone.		Potential providers.	Shapefiles available on request. Tender requirements documents published on website
Regulated Tender Stage	<ul style="list-style-type: none"> • Invitation to Tender (ITT) questions. • Instructions to potential providers. • Tender evaluation criteria. • Bid Form. 	Duration depends on scale and complexity of tender.	Pre-qualified providers.	Documents shared via DPS.



3.3 Stakeholder Feedback

Webinars, meetings with providers, communications via email and operational feedback are the main channels for flexibility services stakeholder feedback directly to ourselves. We also support the ENA in consultations and the challenge group to further extend the reach of our Stakeholder Engagement. In 2023/24 the feedback and resulting actions were as follows:

Table 8: Summary of stakeholder feedback.

Feedback	Action
Some of the industry standard contract terms and conditions are not appropriate for aggregated domestic demand side response.	Feedback from providers passed to Open Networks WS1A – P4 for consideration in v3 of the standard agreement. This was considered in v3 contract which has gone through public consultation and is due to be finalised. The earliest date of implementation by DNOs is April 2024.
The contracting effort for individual zones can be high compared with the value of the contract.	We have now adopted overarching agreements which will help towards implementing closer to real-time contract call off.
Preparation of manual performance reports in spreadsheets is time consuming.	We have now launched Flexible Power and are making plans to develop it further to support providers who are not able or willing to integrate via API.
By simply providing the service seasons, it's not clear what dates and financial year the seasons are referring to.	We have improved our bidding information by defining our seasons in months and financial year. There's a dedicated tab that defines this clearly per Licence area.
The queue of connection applications is getting longer and will not be resolved any time soon due to network constraints.	<p>With flexibility services, we're better placed to accommodate the rapid growth in connections requests. Based on stakeholder feedback, we added an additional competition at Fleet Bramley.</p> <p>A competitive tender at West London will be progressed in May 2024 to support connections in this area.</p>
Under the overarching agreement, the methodology used to calculate settlement	Fed back to settlement working group who are working towards standardising the settlement methodology for manual and automated processes.



depends on the mode of dispatch i.e. manual or automated dispatch and the methodology results in differences in payments. There shouldn't be a difference in the amount paid to Providers for providing the same service using either manual or automated processes.	
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3.3.1 Market Platform

The need for a new market platform was recognised early in the DSO Acceleration Strategy to enhance the experience of FSPs and reduce barriers to entry.

Whilst the existing procurement platform has facilitated initial flexibility procurement, its limitations (such as the lack of API data exchange or bidding windows) necessitate a new solution. This was supported by feedback from FSPs that identified some of the manual processes to participating were unsustainable as the size of services increased. Feedback from FSP's informed the requirements, with a new platform identified and expected to be transitioned to in 2024/25.

3.4 Co-ordination with other DNOs and ESO

The Electricity Networks Association (ENA), particularly the Open Networks programme, play an important role in the collaboration effort needed to deliver the frameworks necessary to promote and support Flexibility Services. It does this by bringing together industry participants across the UK to share best practice and develop consistent definitions and processes where this is beneficial. In the past year, we have made great strides in this project, for example by contributing to the development of and implementing the latest Flexibility Services Agreement (FSA) and new standardised products and taking on a leadership role in the settlements working group.

The key Open Networks technical working groups in 2022/23 were:

- Operational data Sharing - A mechanism for sharing real-time operational and forecasting data between ESO and DNO. (WS 1b)
- Primacy Rules (service conflicts) – Defining and implementing 'Primacy Rules' for the ESO and the DNOs to manage service conflicts. WS (1a)
- Flexibility Products – A review of existing and new Flexibility products and undertaking further analysis on stack ability to address barriers. (WS1a)
- Settlement (Dispatch interoperability & Settlement) – A review of interoperability of systems across DSO and ESO and the approach to settlement across DSO services. (WS 1a)



- DER Visibility (& Data sharing) – A recommendation and implementation plan for gaining visibility of Distributed Energy Resources (DER). (WS 1b)

Full product details can be found in the ENA Open Networks PID²¹.

We are also a member of the Flexible Power collaboration. This group of DNOs are developing a set of software tools for managing availability, dispatch and performance reporting, which providers and DNOs can access via a web portal and API. In the past year, the collaboration group has delivered several new features including:

- Improved, integrated API documentation.
- Support for nominated baselines (static and timeseries).
- Multiple dispatch events per day and overnight events.
- E-mail daily utilisation schedules

3.4.1 Local Constraint Markets (LCM)

We are coordinating with NESO on Local Constraint Market (LCM) trials enabling efforts to reduce the costs to end consumers for transmission constraint management on the B6 and B4 boundaries. Successful implementation of LCM will improve market liquidity and further develop NESO to DSO coordination on a Total Systems approach within the context of the whole systems register alongside data sharing to maximise network availability.

We are coordinating closely with the ESO by sharing data via the Risk of Conflict Report (RoCC). This is to inform the ESO where we are dispatching Flexibility Services and operating ANM systems. The RoCC was delivered as part of Open Networks in previous years and demonstrates collaboration between SSEN Distribution, the ESO and other DSOs.

Finally, we are working closely with the ESO on potential Regional Development Programmes (RDPs) as part of the Whole Electricity Joint Forum, which is made up of DNOs, Transmission Operators (TOs) and the ESO. An RDP is a project or study that looks at the electricity network across Great Britain. They identify areas of development between transmission and distribution networks in areas with large amounts of distributed energy resources (DERs). RDPs are designed to unlock additional network capacity, reduce constraints, and open new revenue streams for market participants. They aim to introduce new ways of working that significantly enhance transmission and distribution systems' coordination and control, and they provide new tools and resources to manage system constraints – ultimately reducing costs for consumers. They 'design by doing', creating whole system efficiencies as quickly as possible.

3.5 How to sign up for future engagement events.

If you would like to receive information about future stakeholder engagement events, please email stakeholder.engagement@sse.com. Stakeholders can also view and register for engagement events on our website²² or refer to our DSO newsletter²³.

²¹ [ON22-PRJ 2022 Programme Initiation Document \(PID\) \(13 Jan 2022\) Published.pdf \(energynetworks.org\)](#)

²² <https://www.ssen.co.uk/about-ssen/stakeholder-engagement/>

²³ <https://forms.office.com/Pages/ResponsePage.aspx?id=gw87leYcw0WCyR2EfcjOR5Sy8lvG7pLkKaOuv-WkplUMVRPMU9VMTRONU5BWIVVVFYUFFPMM0ZMMCQIQCN0PWcu&wdLOR=cCDF559DC-41FA-F244-BAFD-D6E8C1A44264>



4 ECONOMIC VIABILITY

4.1 Requirements and Benefits Analysis

At SSEN Distribution we have a 'Flexibility First' commitment. This means that all proposed load-related reinforcement schemes are assessed for their potential to be deferred or avoided with flexibility. As connections requests continue to grow, and rates of low carbon technology installations (such as heat pumps and electric vehicle chargers) ramp up on our network, the need to refine the process for assessing whether flexibility is a suitable and practical alternative to specific network reinforcement proposals grows. In 2023/24 we have made great strides in streamlining and refining our use of the ENA's Common Evaluation Methodology (CEM) tool to assess the costs and benefits of flexibility against network reinforcement. We have also developed processes for determining the feasibility of procuring the amount of flexibility required to mitigate the identified network constraint. This will allow us to effectively prioritise areas for reinforcement and areas where flexibility can be used effectively. So far in 2023/24 we have applied this process to 37 identified network constraints with proposed reinforcement solutions and have identified 20 that are candidates for flexibility.

Our approach to establishing a requirement and assessing the economic benefit of using Flexibility Services varies depending on the type of service:

- **Sustain and Secure:** Flexibility used to defer or avoid reinforcement costs. The ENA-defined CEM is used to establish optimum deferral period based on the Net Present Value (NPV) of deferred cashflows.
- **Secure (Outage-Led), Dynamic and Restore:** Flexibility used as an alternative to mobile diesel generation or use of SSEN-owned generators (on Scottish Islands). A cost comparison is carried out based on a range of potential availability/utilisation scenarios.

4.1.1 Sustain & Secure Services

We have developed a neutral investment process to give technical and economic assurance for our decision making between flexibility services or investment in network reinforcement. The process starts with traditional system planning identification of possible future constraints, based on annually updated Distribution Future Energy Scenarios (DFES) demand and generation forecasts. Reports on our DFES projections are available online for our North of Scotland²⁴ and Central Southern England²⁵ license areas.

The constraint is assessed in detail to determine possible reinforcement solutions. The Ofgem cost benefit analysis tool²⁶ is then used to determine which of the network reinforcement solutions is preferred, after which the preferred solution is assessed against flexibility using the Open Networks' CEM tool²⁷.

The CEM tool calculates the NPV for the baseline strategy and flexibility strategies of varying durations, to determine the optimal solution. The output is a recommendation of either no deferral using flexibility, or the optimal deferral duration using flexibility services. For constraints which result in a recommended deferral of any duration, we assess the feasibility of procuring the volume of flexibility needed to manage the constraint. This mitigates against relying on flexibility in cases where the requirement exceeds the size of the market. If flexibility services could be used to manage the constraint, then service windows, capacity, and utilisation are forecast and fed into the procurement processes.

²⁴ <https://www.ssen.co.uk/globalassets/about-us/dso/dfes/ssen-dfes-2023-north-of-scotland.pdf>

²⁵ <https://www.ssen.co.uk/globalassets/about-us/dso/dfes/ssen-dfes-2023-southern-england.pdf>

²⁶ <https://www.ofgem.gov.uk/publications/riio-ed2-data-templates-and-associated-instructions-and-guidance>

²⁷ [https://www.energynetworks.org/publications/on22-ws1a-p1-common-evaluation-methodology-tool-version-2.2-\(25-aug-2022\)](https://www.energynetworks.org/publications/on22-ws1a-p1-common-evaluation-methodology-tool-version-2.2-(25-aug-2022))



This process is our Distribution Networks Options Assessment (DNOA) process and is described in more detail in our DNOA Methodology Report²⁸. In addition to the methodology report, the outcomes of DNOA processes are published periodically on our website²⁹. The first of these DNOA Outcomes Reports was published in March 2024³⁰.

In 2023/24, a number of opportunities were assessed with the outcomes shown in Table 15. Where schemes have been determined to be not technically viable this may be due to a very large requirement to manage the constraint in question, or due to a lack of sufficient flexible assets on the network to meet the size of the requirement. In some cases this may also be due to the type or complexity of the constraint, e.g. some voltage constraints are not possible to be resolved with flexibility due to lack of localized generation or demand turn-down assets.

Table 15: Flexibility assessment outcomes SEPD.

Original Zone Name	Licence Area	Flexibility Assessment Outcome
Denham ³¹	SEPD	Flexibility not commercially viable.
Beaconsfield	SEPD	Flexibility commercially and technically viable.
Egham	SEPD	Flexibility commercially and technically viable.
Herschel Street	SEPD	Flexibility commercially and technically viable.
East Bedfont	SEPD	Flexibility commercially and technically viable.
Harvard Lane ³²	SEPD	Flexibility commercially and technically viable.
Oxford (Osney)	SEPD	Flexibility commercially and technically viable.
Lytchett	SEPD	Flexibility commercially and technically viable.
Wimborne	SEPD	Flexibility not technically viable.
Ealing 66 kV ³³	SEPD	Flexibility not technically viable.
Birdham	SEPD	Flexibility commercially and technically viable.

28 <https://www.ssen.co.uk/globalassets/about-us/dso/publication--reports/ssen-dnoa-methodology-final-march24.pdf>

29 <https://www.ssen.co.uk/about-ssen/dso/publications-and-reports/>

30 <https://www.ssen.co.uk/globalassets/about-us/dso/publication--reports/ssen-dnoa-outcome-reports-march-24.pdf>

31 [High Wycombe and Marlow in DNOA outcomes.](#)

32 [Chiswick in DNOA outcomes report.](#)

33 [Ealing and Hounslow in DNOA outcomes report.](#)



Ealing 22 kV ³⁴	SEPD	Flexibility not technically viable.
Alresford	SEPD	Flexibility commercially and technically viable.
Slough	SEPD	Flexibility not technically viable.
North Hyde	SEPD	Flexibility not commercially viable.
Fawley North	SEPD	Flexibility not technically viable.
Charlbury Woodstock	SEPD	Flexibility commercial and technically viable.
Wareham	SEPD	Flexibility commercially and technically viable.

Table 16: Flexibility assessment outcomes SHEPD.

Original Zone Name	Licence Area	Flexibility Assessment Outcome
Culloden	SHEPD	Flexibility commercially and technically viable.
Burghmuir ³⁵	SHEPD	Flexibility commercially and technically viable.
Tarland ³⁶	SHEPD	Flexibility not technically viable.
Stornoway	SHEPD	Flexibility not technically viable.
Fort William	SHEPD	Flexibility not technically viable.
Keith 1 ³⁷	SHEPD	Flexibility not technically viable.
Keith 2 ³⁸	SHEPD	Flexibility not technically viable.
Dufftown	SHEPD	Flexibility commercially and technically viable.
Abernethy ³⁹	SHEPD	Flexibility commercially and technically viable.

³⁴ [Chiswick and East Brentford in DNOA outcomes report.](#)

³⁵ [Inveralmond and Redgorton in DNOA outcomes report.](#)

³⁶ [Tarland, Aboyne, Ballater in DNOA outcomes report.](#)

³⁷ [North-East Moray in DNOA outcomes.](#)

³⁸ [Aberdeenshire in DNOA outcomes.](#)

³⁹ [Abernethy, Kinross and Dollar in DNOA outcomes.](#)



Machrie/Whiting Bay 11 kV Network	SHEPD	Flexibility not technically viable.
Waterloo Place	SHEPD	Flexibility not commercially viable.
Loch Carnan	SHEPD	Flexibility not commercially viable.
Persley	SHEPD	Flexibility commercially and technically viable.
Springhill	SHEPD	Flexibility commercially viable.
South Shetland	SHEPD	Flexibility not commercially viable.
Queens Lane North	SHEPD	Flexibility commercially and technically viable.
Milton of Craigie	SHEPD	Flexibility commercially and technically viable.
Errochty/Tummel Bridge	SHEPD	Flexibility not technically viable.

4.1.2 Secure, Dynamic and Restore Services

Where services are procured to support planned work on our network, requirements are identified through a review of projects where planned outages are involved, or where there is potential for single circuit risk while works are being undertaken. For these sites, restoration plans are analysed to identify areas that might experience outages in the event of a secondary fault and therefore might require Mobile Diesel Generation (MDG) to restore or maintain supplies.

For Secure and Dynamic services, availability and utilisation prices are agreed at the point of contract. However, the capacity required and availability windows are determined closer to the point of need, and the economic viability of using flexibility is also assessed at that point. To avoid entering into uneconomic contracts, bids are assessed using a set of potential usage scenarios and the estimated costs of traditional alternatives.

Restore utilisation prices are also agreed at the point of contract. Should faults occur, our control rooms determine if the use of flexibility is economically viable when compared with alternatives.



4.1.3 Cost Benefit for Flexibility Services

The Table below shows the actual payment in 2023/2024 for flexibility services and along with the alternative options cost and original capital cost due to the network reinforcement. The benefit could be the NPV from deferring network investment or the money saving by using flexibility instead of mobile diesel generation.

Table 9: Costs and benefits of Flexibility Services.

Service	Payments	Alternate Provision Cost	Annual proportion of deferral NPV	Deferred Capital Expenditure	Benefit
Secure (forecast-led)	£180,345	N/A	£265,995	£13,757,365	£265,995
Secure (outage-led)	£4500.48	£8938.00	N/A	N/A	£4437.52
Sustain	£43,899.32	N/A	£1915.25	£1,800,000	£7661.74
Restore	£8410.08	£24,580	N/A	N/A	£16,169.92

For the Sustain scheme, the alternative would have been costly reinforcement which might have only been needed until anticipated demand growth materialises. Since the decision on reinforcement has been deferred, the saving per year reported here is the NPV of deferral divided over the years of the contract (since the cost of the service was already factored into the original NPV calculation). In terms of annual capital expenditure, the reinforcement costs avoided amount to an estimated £1.8M. Secure (forecast-led) services adopt a similar methodology to Sustain scheme, but the benefit for per year is the NPV of deferral divided over the dispatch year (since we updated the actual service cost at the end of each financial year). Please note, the figures above are for those services we are actively dispatching. The total deferred reinforcement is in the region of £44m for zones we have procured to date.

Secure (outage-led) and Restore services are used as an alternative to mobile diesel generation and the benefit is the difference between the cost of the diesel generation and services.

More information on the methodology followed to ensure economic viability can be found via the following:

- 2024/25 Flexibility Service Procurement Statement⁴⁰
- ENA Common Evaluation Methodology v2.0⁴¹
- Operational Decision-Making framework⁴²

4.2 Price Evaluation

In 2023/24 SSEN Distribution held three tenders for flexibility services. The first commenced in May 2023 and used bilateral contracting procedures as with previous tenders. In September 2023 we began a tender for providers to sign on to our new overarching agreement. For providers who signed the agreement, two further tenders were held, one commencing in January 2024 and one commencing in February 2024.

⁴⁰ <https://www.ssen.co.uk/globalassets/our-services/flexibility-services-document-library/reports/ssen-c31e-flexibility-services-procurement-statement-2024.pdf>

⁴¹ [Microsoft Word - CEM Tool User Guide v2.0 \(energynetworks.org\)](#)

⁴² [SSEN Operational Decision Making ODM](#)



For the May tender, providers were scored per zone and service based on quality and price criteria, with a minimum score required to be awarded a contract. Details of the scoring mechanism were included with each invitation to tender. Prices are scored relative to other bidders for the same zone and service. When there is only one bidder, relative scoring is not possible which could result in contracts being awarded that are not cost-effective. To avoid this, ceiling prices were implemented for this tender. Where services are needed to defer or avoid reinforcement, the ceiling prices are validated using the CEM tool. In the May 2023 tender, price ceilings were used for Secure, Dynamic, and Restore services.

For the overarching agreement tenders, a different approach was adopted. Price ceilings were removed for all services, and instead an estimated market value for each service in each area was published, to indicate to providers roughly what prices might be accepted. More information on our Autumn 2024 tenders can be found in the 'Tender Requirements Document'⁴³. The scoring mechanism was not required for these tenders as all volume requested was either under-procured or both bids were accepted, and the ODM dispatch process could be followed in shorter timescales. Where over-procurement occurred, providers were alerted to this.

All tenders used 'pay-as-bid' mechanisms.

Once contracts have been awarded, cost benefit assessment is also carried out close to the point of need to ensure we are using the best-value solutions for our network needs. For example, the decision on whether to use a Dynamic service to support planned work involves weighting the potential financial impact under our loss of supply incentives (Customer Interruptions and Customer Minutes Lost incentives) against the risk of a power outage. Mobile or embedded diesel generation may be chosen over Flexibility Services if it is cheaper or has technical capabilities that is better suited to the situation. Of all the applicable scenarios, dispatching the available flexibility service was the most efficient/effective/appropriate solution when compared against the use of mobile generation, carrying out a network outage, or using other network solutions.

For all our 2023/24 tenders, no feedback was received indicating that providers did not understand our bid evaluation criteria, and we did not receive any questions or requests for clarifications on these processes.

The outcome of all tenders is published within 30 days of contract award and can be found on our website⁴⁴.

4.3 Market Assessment

As part of our DNOA process, we assess not only the economic feasibility of flexibility but also the technical feasibility, to ensure that we are not relying on flexibility to manage network constraints in areas where the requirement is larger than the amount of flexibility the existing market can provide. As such we have developed an internal check to compare the size of the flexibility requirement in the event of reinforcement deferral, to a forecast of how much flexibility we believe might be available in that network area. This forecast pulls together data from numerous sources including number of customers in an area, government population projections, growth in low carbon technologies such as EVs and heat pumps from our DFES projections, existing generation assets, and existing flexibility procured. This check is performed for all network areas where flexibility is identified as economically feasible. The outcomes of this assessment are detailed in Table 10.

This initial viability assessment is indicative. Once a flexibility recommendation has been progressed, market procurement activities are used to directly inform whether flexibility will be viable in a given network area. More information on our DNOA process can be found on our website.⁴⁵

⁴³ [tender-requirement-document-september-20232.pdf \(ssen.co.uk\)](#)

⁴⁴ [Flexibility Services Document Library - SSEN](#)

⁴⁵ [Distribution Network Options Assessment \(DNOA\) \(ssen.co.uk\)](#)



4.3.1 Provider Participation In Other Markets

At SSEN Distribution we do not prevent providers from offering similar services to other operators, or from stacking revenues, providing it does not conflict with the provision of services to SSEN Distribution. No actions are taken that might assist or hinder providers from competing in other markets, nor is any advice given to providers about their obligations under other contracts.



5 CARBON REPORTING

5.1 Quantitative Carbon Assessment & Methodology

The carbon impact calculation presented in this report follows the standard ENA methodology. The calculation varies depending on whether the flexibility asset is generation, storage (export), or demand / storage (import). The impacts include direct impacts (such as burning fuel) and consequential impacts (such as demand payback) but not indirect impacts (such as embodied carbon). The methodology does not include counterfactual or relative emissions calculations, however where specific diesel generation has been avoided, we have included this as a consequential carbon saving. The conversion factors used are generally industry standard which include grid-intensity, plant efficiencies, fuel emission factors, and payback assumptions. Asset specific factors are not used to maintain consistency between DNO reports which means that the methodology reports an approximation of carbon impacts. The detailed methodology is available on the ENA website⁴⁶.

In 2023, the Carbon Reporting Technical Working Group (TWG) reviewed and updated the methodology based on industry feedback in late 2022. Engagement with Ofgem is expected around Spring 2024 to discuss the improvement of C31E report. The main update in 2023 broadly included:

- Clarifying the guidance where details are missing or unclear based on feedback from TWG members following implementation in 2022.
- Investigation of other areas identified in 2022 as areas for future development including grid intensity factors and use of asset-specific data.
- Producing an excel tool to help users implement the calculation for their own purposes.

As the reviewed outcome in 2023, the TWG recommend continuing to use a static marginal grid intensity factor to evaluate the impact on the grid from a change in demand/generation. The short-run marginal grid intensity factor approximated from gas generation has been adopted to assess the temporary carbon impact due to the services dispatch, such as Secure, Sustain and Restore. The long-run marginal grid intensity factor from Green Book can be used to evaluate the sustained and long-term (years) impact caused by energy efficiency or long-term scheduled flexibility services contracts. However, SSEN did not utilise these types of services in 2023/24 and therefore did not apply the long-run marginal grid intensity factor.

The conversion Factors used for carbon reporting are from the below sources:

Table 18: Carbon conversion factors.

Factor Types	Sources	Notes
Fuel emission factor	<ul style="list-style-type: none"> • BEIS/Defra⁴⁷ 	CO2e, Gross CV. Updated annually.
Efficiency	<ul style="list-style-type: none"> • BEIS Electricity Generation Costs 2020⁴⁸ 	The DUKES report is updated annually, however the others are one-off reports

⁴⁶ [ena-on-carbon-reporting-methodology-2023-230906-clean.pdf \(energynetworks.org\)](#)

⁴⁷ [Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK \(www.gov.uk\)](#)

⁴⁸ [BEIS Electricity Generation Costs \(2020\) - GOV.UK \(www.gov.uk\)](#)



	<ul style="list-style-type: none"> • Coal – DUKES⁴⁹ • BEIS Storage Costs and Assumptions 2018⁵⁰ 	
Grid Intensity	<ul style="list-style-type: none"> • Short-run: Fuel emission factors and efficiency as per above sources • Long-run: Green Book data tables⁵¹ 	<p>Short-run: EF of natural gas divided by efficiency of an OCGT e.g. based on 2022 EF, 183gCO₂e/kWh / 35% = 523gCO₂e/kWh.</p> <p>Long-run: Average of consumption long-run marginal factors, use most recently updated value rather than forecasts. Irregularly updated.</p> <p>Note, long-run refers to interventions that results in sustained change in demand/generation over years. Short-run refers to interventions that result in temporary change in demand/generation.</p>
Payback %	<p>For demand-turn-down: Low Carbon London report⁵²</p> <p>For demand-turn-up: TWG view</p>	<p>Demand-turn-down: From a one-off innovation trial. Assume 21% for reduction services, based on the average of trial events. Assume 100% for load shifting solutions.</p> <p>Demand-turn-up: Assume 100%</p>

In 2023/24, the majority of utilisation was windfarm generation turn down, and demand turn down (100% payback) which is calculated as displacing grid generation to the grid and reduce grid import, respectively. Where services were used as an alternative to local diesel generation, the consequential carbon impact has been based on the reduced diesel burn, instead of a reduction in generic grid generation. Service of generation turn up only considers the increased combustion of fuel. The results of this year's carbon impacts are shown in detail in Table 17 and the figures are calculated based on the delivered energy, the dispatch intensity metric in 2023/2024 is 279.8kgCO₂e/MWh (total carbon impact divided by the total energy delivered).

49 [Digest of UK Energy Statistics \(DUKES\): electricity - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics)

50 [storage-costs-technical-assumptions-2018.pdf \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/344444/storage-costs-technical-assumptions-2018.pdf)

51 [Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/344444/green-book-supplementary-guidance-valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal.pdf)

52 [Low Carbon London - UKPN Innovation \(ukpowernetworks.co.uk\)](https://www.ukpowernetworks.co.uk/low-carbon-london)



Table 109: Carbon impact.

LC31 Technology Category	Requested Energy (MWh)	Delivered Energy (MWh)	Direct Carbon Impact (kgCO ₂ e)	Consequential Carbon Impact (kgCO ₂ e)*
Wind	312	312	0	163,160
Waste Water (flowing water or head of water)	61.45	61.45	0	-43,220
Fossil - Gas	77	115.5	60,410	
Demand	103.69	155.5	-81,330	81,330
Total	554.14	644.45	- 20,920	201,270
			Net CO ₂	180,350 kgCO ₂ e

Note: the over-delivered energy has been capped at 150% for demand turn down and generation turn up services.

The TWG gathered views from industry via a focus group held on 02 July 2023 on the key areas and checked with the Department for Energy Security and Net Zero to ensure continued policy alignment. SSEN Distribution will continue to contribute to the Ofgem & BEIS initiative to achieve common methodologies for carbon reporting and monitoring across DNOs, via Open Networks' carbon reporting workstream.



6 APPENDIX: SUPPLEMENTARY INFORMATION

6.1 Useful links to additional information

Table 20: Useful links.

System	Description	Link
DPS (Delta-esourcing)	Dynamic Purchasing System, currently used for pre-qualification and tendering (to be discontinued in April).	https://ssen.delta-esourcing.com/
Flexible Power Website	Dispatch platform.	https://www.flexiblepower.co.uk/locations/scottish-and-southern-electricity-networks
SSEN Website	Information on Flexibility Services and links to documentation including procurement statement, service documentation, zone map and tender results.	https://www.ssen.co.uk/our-services/flexible-solutions/flexibility-services/
ENA Open Networks Workstream 1A website	Information on the Open Networks Flexibility Services workstream (archived web-page).	https://www.energynetworks.org/creating-tomorrows-networks/open-networks/flexibility-services
National Grid ESO Website	National Grid ESO and distributed network operators (DNOs) are working with stakeholders across Great Britain through Regional	https://www.nationalgrideso.com/research-publications/regional-development-programmes



	Development Programmes (RDPs).	
Operational Decision-Making Framework March 2024	ODM sets out the way in which we dispatch Distributed Energy Resources (DERs) to meet short-term capacity needs in a fair and efficient way.	https://www.ssen.co.uk/globalassets/about-us/dso/publication--reports/ssen-dso-odm-framework-update-march-2024.pdf
Flexibility Roadmap	Document setting out our flexibility approach and how it will evolve over time.	https://ssen.tractivity.co.uk/images/blob/ac891aaa-7036-4ec1-9e9e-cb33fdfe50c9/SSEN-flexibility-roadmap-draft-0.2.pdf
DNOA Methodology	Document describing the process we use to make decisions on how to meet the network's needs through flexibility or strategic investment.	https://www.ssen.co.uk/globalassets/about-us/dso/publication--reports/ssen-dnoa-methodology-final-march24.pdf
DNOA Outcomes	Document detailing the outcomes of the DNOA process so far.	https://www.ssen.co.uk/globalassets/about-us/dso/publication--reports/ssen-dnoa-outcome-reports-march-24.pdf



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