SSEN DISTRIBUTION FLEXIBILITY SERVICES

C31E Procurement Report (2021-2022)

Version 1.1, 15/07/2022

Scottish & Southern Electricity Networks

CONTENTS

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 UK and Scottish Governments' net zero commitments.

The facilitation of Flexibility Services allows us to reduce our reliance on expensive reinforcement, particularly where this need may be in response to temporary or changing demands on our network, and to reduce our use of more traditional carbon-intensive approaches to securing supplies.

We are working across the industry and seeking to engage as many stakeholders as possible to ensure we deliver the necessary frameworks that facilitate and grow Flexibility Services. We recognise that key to this is ensuring that service providers are able and motivated to participate, and for us, this is about ensuring that our processes are as clear and as straight forward as they can be, and that we endeavour to give service providers as much certainty as possible.

In 2021/22, SSEN Distribution utilised 4.6 GWh of flexibility. This was primarily in response to a cable fault, which historically would have been managed through diesel generation. As a result, we managed to avoid 1,169 tonnes of CO_2.

We also tendered for a further 115 services across both our licensed areas (Scottish Hydro Electric Power Distribution plc and Southern Electric Power Distribution plc), with 22 service contracts being secured within 2021/22.

One of these contracted services marked the first of its type – the Sustain service. Having identified an area of our network that could benefit from Flexibility Services to manage potential excess generation, by providing clear terms, we have been able to successfully procure and contract a Sustain service that will manage this constraint until demand on the network in the area grows.

Going forward, key focus areas for us include continuing to work with stakeholders to drive and embed further improvements in our procurement processes, as well as continuing to look at new ways to ensure that we provide opportunities that are attractive as possible to stimulate and grow the flexibility services market.

1.INTRODUCTION

Scottish and Southern Electricity Networks (SSEN) Distribution was the first UK Distribution Network Operator (DNO) to introduce Flexibility Services and it continues to lead the delivery of flexibility across the GB Distribution networks. Flexibility Services offer DNOs an efficient alternative to conventional network reinforcement and make way for Low Carbon Technologies (LCTs) to offset traditional methods, such as diesel generation, in managing the network during times of constraint or outage.

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 network issues that may affect customers' use of our network. We call these 'Constraint Managed Zones' (CMZs) or 'zones'.

These zones and the opportunities they present to procure Flexibility Services are published and widely communicated on both our SSEN Distribution webpages and the Flexible Power website.

The Electricity Network Association (ENA) and, in particular the Open Networks project, play a pivotal 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. SSEN Distribution has been and remains a very active participant in this project, leading the way on several initiatives and market trials.

The purpose of this Report is to provide an update to our stakeholders and interested parties on our procurement of Flexibility Services for the period 1 April 2021 to 31 March 2022. Specifically, it details the Flexibility Services that we have tendered for, contracted and dispatched over the year against our forecast view of procurement set out in our 2021/22 Flexibility Services Procurement Statement, first published in March 2021.

Whilst this is the first of these Reports, by publishing an updated Report each year, it is hoped that we will be able to 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.

Alongside this Report, as well as detailed data tables pertaining to the Services tendered for, contracted and dispatched in 2021/22, which can be found here, we have also published (or are due to publish) the following reports that further support the work we are doing to promote and further 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. These include:

- Our 2022/23 Flexibility Services Procurement Statement, which sets out our latest forecasts for Flexibility Services procurement for the year commencing 1 April 2022;
- Our Long-Term Network Development Statement (or LTDS), which sets out our network plans for next five year period;
- Our soon to be published Network Development Plan (or NDP), which builds on the LTDS setting out our longer-term network plans and indicates potential areas of network constraint and opportunity for Flexibility Service providers into the long term horizon.

Across these publications, as well as being able to see the progress we are making, we hope that this information gives visibility to flexibility providers on where and what types of services are being procured. Our intention is that by making it easier for flexibility providers to offer their services, this will increase the amount of flexibility that we are able to procure.

Finally, SSEN Distribution is 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. Feedback can be submitted directly to the Flexible Solutions Team at the following address: FlexibleServices@sse.com

1.1 Highlights

- In 2021/22, we utilised 4.6 GWh of flexibility. This was primarily in response to a long running subsea cable fault in the Western Isles and reduced our reliance on traditional standby diesel generation. In so doing, we managed to avoid 1,169 tonnes of CO_2.
- We have launched a new Dynamic Purchasing System (DPS), streamlining our procurement of Flexibility Services and establishing a platform for developing closer to real-time procurement in the future.
- We awarded our first Sustain contract at Logie Pert CMZ. This defers (and potentially avoids) £1.7m of network reinforcement.
- We have continued to review and improve our processes and service terms to increase engagement and participation and, in 2021/22, we reformed our Dynamic Service to align with wider work and provide service providers with more certainty over payment where utilisation is uncertain.

1.2 Key Issues / Focus Areas

We continue to seek feedback from all stakeholders on areas that work well and those where further improvements could help to drive increased engagement and participation from both existing and potential future providers of flexibility services. Two specific challenges that have emerged over 2021/22 are set out below, along with the steps we are taking to address these.

- In 2021/22, since launching our new DPS, we have received lower than expected numbers of service provider registrations and pre-qualifications on this system. This is despite widespread engagement and the sharing and publicising of opportunities on both our own SSEN Distribution website and the Flexible Power website. The lower than expected enrolment has had an adverse impact on the number of parties engaging in our service tenders and is limiting our ability to move towards near-horizon procurement. To address this, we are continuing to strive to make the processes around our procurement of services as straightforward for providers as possible. We are also continuing to review and reform our services so that they are more attractive to service providers, not least by adjusting our payment terms and better defining our service requirements, which will give providers more certainty over their likely revenue streams.

- We have a number of legacy contracts and manual operating processes that do not align well with automation platforms such as Flexible Power. Process improvement initiatives have been launched internally and we have driven development of the Flexible Power platform through the DNO Flexible Power Collaboration with the goal of launching it in the coming year.

For more details on SSEN Distribution's plans for the procurement year 2022/23, we encourage you to read our 2022/23 Procurement Statement, which can be found on the SSEN Distribution website Flexibility Services Document Library.

1.3 Services Summary

SSEN Distribution currently procures four active power services: Sustain, Secure, Dynamic and Restore. These services broadly align with the Open Networks Service Definitions.

Service	Description
Sustain	The Network Operator procures, ahead of time, a pre-agreed change in input or output over a defined time period to prevent a network going beyond its firm capacity.
Secure	Network Operator procures, ahead of time, the ability to access a pre-agreed change in Service Provider input or output based on network conditions close to real-time.
Dynamic	The Network Operator procures, ahead of time, the ability of a Service Provider to deliver an agreed change in output following a network abnormality.
Restore	Following a loss of supply, the Network Operator instructs a provider to either remain off supply, or to reconnect with lower demand, or to reconnect and supply generation to support increased and faster load restoration under depleted network conditions.

Table 1: Standard Flexibility Services

In addition, SSEN Distribution has been developing a new prototype flexibility service called Stability, which was put out to tender in 2021. This is a service solution being developed to provide frequency stability in scenarios where islands become disconnected from the national grid.

2.FLEXIBILITY PROCUREMENT AND USAGE

2.1 Summary

As outlined in our 2021/22 Procurement Statement, the majority of our Flexibility Services procurement in 2021/22 was for services to support planned or unplanned outages.

Measure	Value	Supporting narrative
Total capacity contracted in reporting year (MW)	358.8 MW	The bulk of this capacity is in SHEPD for contracts awarded in March 2022. As of 31 March 2022, none of this capacity has been dispatched.

Total dispatch capacity in reporting year (MWh)	4.6 GWh	This utilisation relates to our SHEPD network and is in response to network faults. The contracts used were entered into prior to the 2021/22 reporting year.
Needs not met in reporting year (MW)	N/A	For most tenders, we did not specify the MW capacity needed but left this uncapped. For those that did, all needs were met.
Projected Service Procurement as per 2021 Procurement Statement	145	Total number of services projected to be tendered. This includes services in pre-existing CMZs which were listed in the Procurement Statement under “May Re-Tender” but were not tendered.
Tendered Services	112	Total number of services tendered. The difference from the projected procurement data above is the ‘May Re-Tender’ services.
Services Procured	21	Total number of services contracted.
Procurement Success Rate	19%	Actual Procurement / Projected Procurement. Please see Needs Not Met section for more details.

Table 2: Procurement and Usage Summary

2.2 Services Tendered & Contracted

The following table summarises the Flexibility Services tendered and procured across both our licence areas in 2021/22.

Service	Forecast according to our 2021/22 Flexibility Services Statement	Tendered	Contracted
Sustain	1	1	1
Secure	29	28	6
Dynamic	42	41	7
Restore	42	41	7
Stability (New)	1	1	In progress

Table 3: Tendered and contracted services compared against 2021/22 Procurement Statement.

2.3 SHEPD Region Tenders

In our Scottish Hydro Electric Power Distribution plc (SHEPD) (our north of Scotland) licence area, all new zones listed in SSEN Distribution's 2021 Procurement Statement, as revised in October 2021, were issued for tender, with the exception of Secure, Dynamic and Restore services in Logie Pert, where only the Sustain service was determined to be necessary.

A number of pre-existing zones were listed in the Procurement Statement as potential zones for re-tendering, should existing contracts be terminated or additional capacity be required. However, such requirements did not materialise, so these zones were not re-tendered. In most cases, where original requirements remained unchanged, existing contracts were rolled over.

Service & Description	Zones	Postcodes (3 digit)
Secure, Dynamic & Restore Demand turn down and/or generation turn up flexibility is required in this area for planned network outages or faults.	Abernethy	KY1, PH2
	Milnathort	KY1, KY4, PH2
	Aviemore	PH2
	Dalwhinnie	PH1, PH2
	Thimblerow	PH1, PH2
	Redgorton	PH1, PH8
	Carradale	KA2, PA2
	Dyce	AB1, AB2, AB4
	Elgin	AB5, IV3
	Fasnakyle	IV4
	Inverness	IV1, IV2, IV3, IV9
	Lunanhead	DD1, DD4, DD8, DD9, PH1
	Lyndhurst	DD2, DD3, DD4
	Milton of Craigie	DD1, DD3, DD4, DD5, DD7
	Mybster	IV2, KW1, KW2, KW3, KW5, KW6, KW7
	Nairn	IV1, IV2, IV3, PH2
	Peterhead	AB4
	Arrochar	G83
	Inverarnan	FK8, G83

	Blairlinnans	G83
	Drymen	G63, G83
	Kilearn	G62, G63
	Taynuilt	PA3
	Oban	PA3
	Lochailort	PH3
	Ardtornish	PA8, PH3
	Shetland	ZE1, ZE2, ZE3
	Lewis & Harris	HS1, HS2, HS3, HS4, HS5
Sustain Generation turn down and/or demand turn up flexibility is required in this area to manage a capacity constraint.	Logie Pert	AB3, DD1
Stability A service solution to provide frequency stability in the event that the Distribution system on the islands is operating as an islanded system without connection to the mainland electricity system.	Lewis & Harris	HS1, HS2, HS3, HS4, HS5

Table 4: SHEPD Services tendered by zone and postcode

The above service requirements for our SHEPD distribution licence area were advertised through the following four tenders:

Services	Tender Ref	Description	Tender Date
Sustain	Services – CMZ Sustain – Logie Pert 1125	2.6MW scheduled Generation Turn Down and/or Demand Turn Up during summer nights.	23/08/2021 to 24/09/2021
Secure, Dynamic, Restore	Services – CMZ Standard Services – Lewis & Harris 0323	Uncapped generation turn up and/or demand turn down flexibility, to support planned outages.	29/11/2021 to 10/01/2022
Secure, Dynamic, Restore	CMZ Standard Services – SHEPD 0323	Uncapped generation turn up and/or demand turn down flexibility, to support planned outages.	13/12/2021 to 17/01/2022

Stability (New)	Services – CMZ Stability – Lewis & Harris 0326	Frequency stability service in scenarios where the islands become disconnected from the grid.	29/11/2021 to 10/01/2022

Table 5: SHEPD Tenders

Geographical Areas

To help potential providers determine if their assets are in a particular zone where a tender is planned, we published approximate geographical areas on the Flexible Power map and SSEN Distribution website. The map below is a snapshot from Flexible Power and shows all the zones signposted and tendered in our north of Scotland licence area in 2021/22.

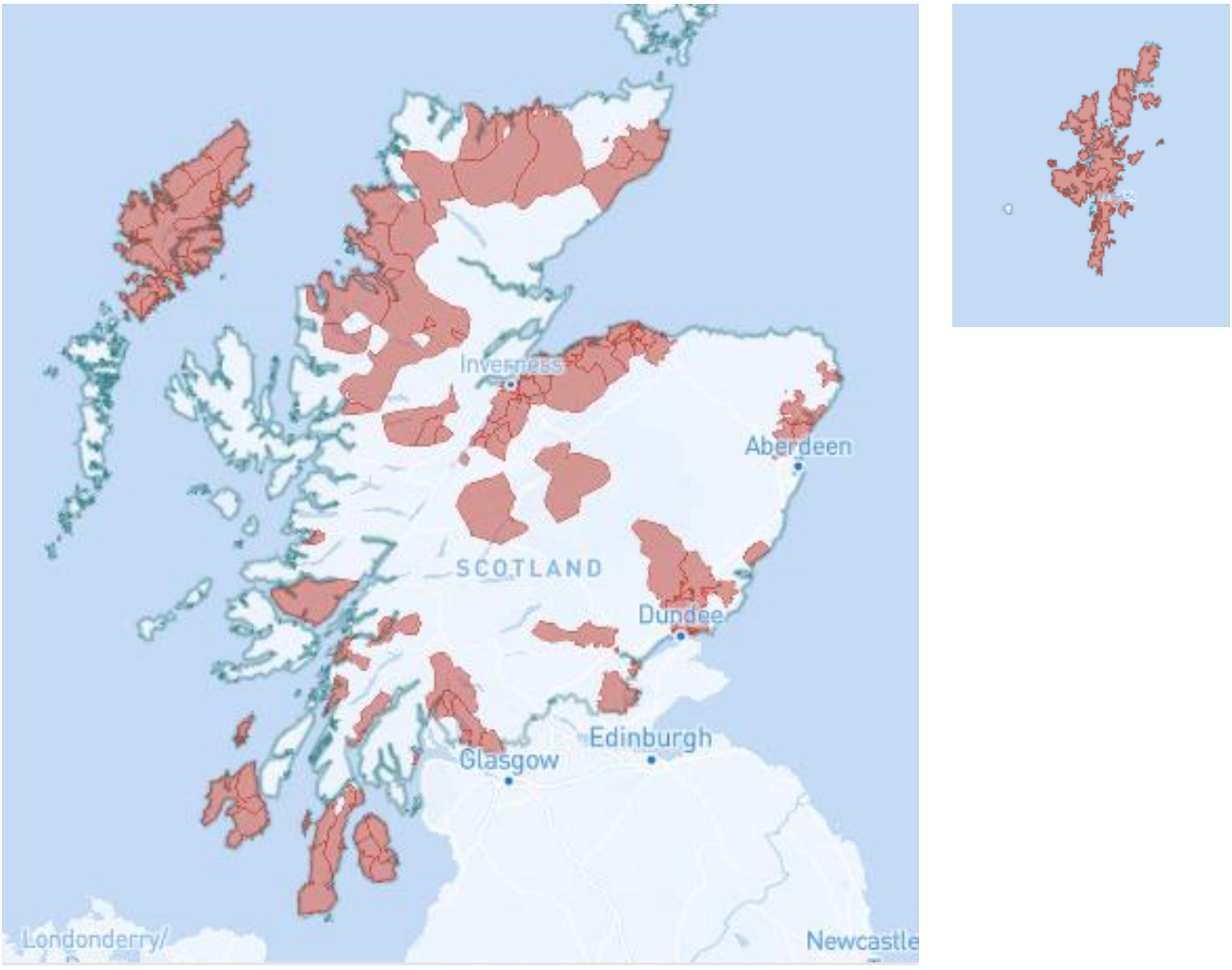

Figure 1: SHEPD zones advertised

2.4 SEPD Region Tenders

In our Southern Electric Power Distribution plc (SEPD) (southern England) licence area, all new zones listed in SSEN Distribution's 2021 Procurement Statement, as revised in October 2021, went out for tender, with one slight amendment - Toothill was subsequently merged with Lydiard Plain. As with SHEPD above, a number of pre-existing zones were listed in the Procurement Statement as potential zones for re-tendering, should existing contracts be terminated or additional capacity be required. However, such requirements did not materialise, so these zones were not re-tendered. In most cases, where original requirements remained unchanged, existing contracts were rolled over.

Service & Description	Zone Names	Postcodes (3 digit)
Dynamic & Restore Demand turn down and/or generation turn up flexibility is required in this area for planned network outages or faults.	Cippenham	SL4, TW1
	Netley Common	PO1, PO7, SO1, SO2, SO3, SO5
	Waterlooville	PO7, PO8
	Lydiard Plain	SN1, SN2, SN3, SN4, SN5, SN6, SN8, SN9
	Stanton Fitzwarren	GL7, OX1, SN2, SN3, SN4, SN6, SN7
	Sherborne	BA2, DT9
	Wycombe Marsh	HP1, HP2, SL7
	Thatcham	OX1, RG1, RG2, RG7, RG8, SN8, SP1
	Shaftesbury	BA1, BA8, BA9, BH2, DT1, DT9, SP3, SP5, SP7, SP8
	Alton	GU1, GU2, GU3, RG2, SO2, SO3
	Petersfield	GU3
	Aldershot	GU1, GU2, GU3, GU7, GU8, GU9

Table 6: SEPD Services tendered by zone and postcode

The above service requirements for our SEPD distribution licence area were advertised through a single tender:

Tender Ref.	Description	Services	Tender dates
Services – CMZ Standard Services – SEPD 0323	Uncapped generation turn up and/or demand turn down flexibility, to support planned and unplanned outages.	Dynamic, Restore	13/12/2021 to 17/01/2022

Table 7: SEPD Tenders

Geographical Areas

The map below is a snapshot from Flexible Power and shows all the zones signposted and tendered in our southern England licence area in 2021/22.

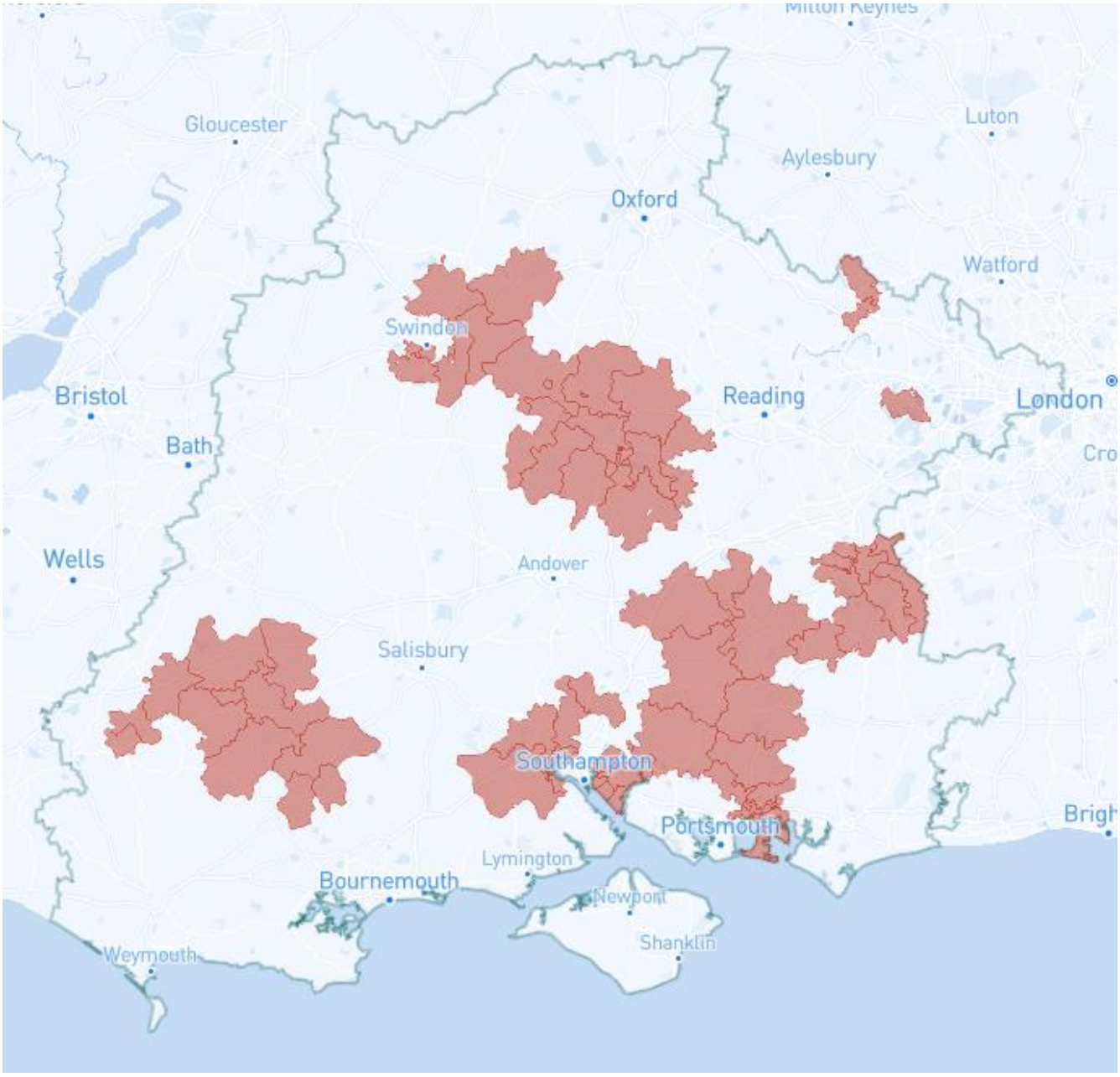

Figure 2: SEPD zones advertised.

2.5 Needs Not Met

In 2021/22, the majority of our tenders were for uncapped capacity. This meant that we did not specify a capacity requirement for the CMZ for which we were procuring Flexibility Services, but instead aimed to attract

as many participants as possible to maximise our choice of providers, if and when these services were called upon.

Based upon the number of services tendered for in 2021/22, we achieved an actual procurement success rate of 19%. This means that we managed to put in place contracts for 19% of tendered services, so we will have to rely on traditional solutions should planned or unplanned outages occur in those zones.

This is the first year of tracking this metric and we believe it will be an important indicator in future years to help us monitor the market's participation and the attractiveness of our tender packages. Despite this being an isolated data point, we have identified the following possible contributing factors to this metric that are within our control and for which plans are in place to address in 2022/23:

1. We introduced our new Dynamic Purchasing System (DPS) in 2021, which introduced a new requirement for all potential providers to register and pre-qualify before they can be invited to tender. Whilst we anticipated that it would take time to build up a pool of potential providers on the DPS, the enrolment rate has been lower than expected. A key objective for us in 2022/23 is to ensure this process is as simple and accessible as possible to all potential users and any barrier, perceived or otherwise, is removed.
2. In 2021/22, the focus has been on procuring contracts for post-fault services. Due to their unplanned and unpredictable nature, these services provide service providers with little certainty over their potential revenue streams, which in turn has meant that providers are less inclined to engage and participate. Further, due to the shorter notice periods for such service requirements, we have found that in some cases the need has passed prior to contracts being awarded. Again, this is a key focus area for us in 2022/23.
3. Further, where procurement has been to support planned or unplanned outages, the lack of clarity over specific requirements, including capacity and dates, until closer to the event, has had an adverse impact on participation. As above, this is a further focus area for us in 2022/23 where we aim to provide improved service value indications and MW requirements where possible.

2.6 Details of Service Usage

In 2021/22, we utilised 4.6 GWh of Flexibility in our SHEPD licence area, almost all of which was in response to a long-running subsea cable fault. The contracts used were entered into prior to the 2021/22 reporting year. More details on the services dispatched can be found on the supporting data spreadsheet here.

CMZ Lite

In March 2021, SSEN Distribution developed a new service type contract for the Western Isles, called CMZ Lite. This was specifically in response to a fault on the subsea Distribution cable serving the Western Isles, which resulted in the Western Isles operating as an islanded Distribution system from October 2020 to September 2021. This new service request was designed to reduce reliance on the islands' standby diesel generation whilst the subsea cable was out of service by facilitating increased renewable generation on the islands up to pre-agreed export limits, with payments for utilisation.

For the purposes of the supporting data spreadsheet, it should be noted that dispatch under these contracts is summarised at a monthly level. This reflects the fact that each provider's capacity limit under these contracts was agreed in advance, meaning that no further dispatch instructions were needed. Although the Utilisation-only

tariff is similar to the Restore service, for reporting clarity this service has been categorised as ‘Other’ in the supporting data spreadsheet.

Standard Services

Restore services, as aligned with the ENA’s Open Networks definition, were used in the following zones:

- Western Isles / Skye
- Islay

The majority of SSEN Distribution contracts are with renewable generators (hydro or wind) and, accordingly, our services allow for uncapped dispatch. This means the generator is instructed to export whatever it can, depending on the conditions at the time.

At this time, all dispatch instructions are made by telephone and manually logged. In the supporting data spreadsheet, dispatch records have been compiled from operational logs combined with monitoring data to give as accurate a view as possible.

2.7 Procurement Timetable

The timing of each of our Flexibility Service procurement tenders in 2021/22 is set out in Figure 3 below. For the most part, changes from our planned timetable reflected the low levels of registration on our new DPS, which led to us providing additional time ahead of tenders to allow more providers to register.

Updates to this timeline were regularly shared with the Electricity System Operator (ESO) and other Distribution Network Operators (DNOs) via the Electricity Networks Association (ENA) Open Networks project to mitigate potential conflicts, as well as being published on the ENA’s website to maximise transparency and give providers advance visibility.

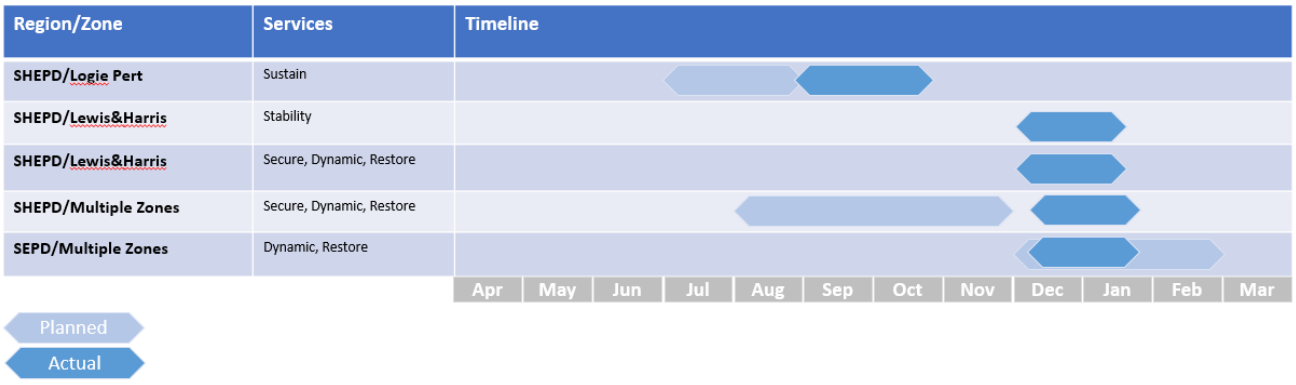

Figure 3: Procurement Timetable

As part of our ongoing work through the ENA Open Network Project, and specifically workstream 1A, we continue to review and, where possible, align procurement windows and processes with other DNOs and the ESO.

3.STAKEHOLDER ENGAGEMENT

3.1 Market Engagement ahead of Tenders

SSEN Distribution recognises the importance of building market interest and ensuring all participants that wish to participate are able to do so. Key to this is making the processes around procurement as straightforward as possible, but also ensuring that interested parties have the necessary information that enables them to engage.

To facilitate this, before each tender, we seek to engage all interested parties that own and/or operate Distributed Energy Resources (DER) to ensure awareness of the opportunities, the service requirements, the tender timescales and process, as well as encouraging any potential providers to register and pre-qualify on the Dynamic Procurement System (DPS). The following is a list of the main engagement channels we have used in 2021/22:

- For each CMZ, the requirements and approximate geographical area have been published online, both through the Flexible Power interactive map and SSEN Distribution's own website.
- Ahead of each tender, webinars have been held:
    - Logie Pert Webinar – 18 June 2021
    - Lewis & Harris Webinar – 27 October 2021
    - SHEPD & SEPD Webinar – 24 November 2021
- As well as through our own website and email notifications to registered / known interested parties, the above webinars have been advertised through the following social media channels: LinkedIn, Facebook, Twitter, Instagram.
- General opportunities for flexibility services have been promoted with local authorities and community energy groups at regional capacity webinars.
- Further, as a specific trial in 2021, for the SHEPD standard services tender, targeted emails were sent to existing DER owners/operators connected in suitable parts of the network in an effort to encourage enhanced participation.
- General CMZ requirements are also shared on SSEN's website and the Flexible Power website.

We strongly encourage any party interested in providing or engaging in Flexibility Services to get in touch and contact details are provided at the end of this report. We would also encourage interested parties to register on our Dynamic Purchasing System, which is a necessary step for anyone looking to take part in any upcoming tenders.

Service Dates and Times

For the Sustain service, dates and times are notified through the relevant webinar and published on the Flexible Power map ahead of the tendering stage. For example, for the Sustain service at Logie Pert, the service windows were 20:00 to 08:00 each day from May to August. These service windows will be reviewed at least once a year and are shared with the provider via email no less than one month ahead of the service season start date.

There is not the same advance visibility for post-fault services. This is because details of planned outage requirements are typically not finalised until two weeks before they are needed, and of course unplanned

outages cannot be predicted. We recognise the challenges this presents to service providers and going forward we are keen to explore what we can do to engage the market in these less predictable and certain events.

How Information was Conveyed

Information and specific requirements were conveyed to providers in the following ways;

Procurement Stage	Information Conveyed	Timescales	Audience	Format
Pre-Qualification	CMZ Decision making criteria CMZ Despatch criteria CMZ Example Contract CMZ General requirements CMZ guidance CMZ pricing and billing	Available at any time	Potential providers	Documents published online (SSEN and Flexible Power websites)
	Pre-qualification Information (questions and Standard contract terms and conditions)	Available on DPS at any time	Potential Providers	Document published on DPS
Signposting	Tender Dates	Up to 6 months before tender	Potential providers	Website (Preceden Timeline)
			ESO/DNOs	Spreadsheet (shared through secure portal)
	Zone geographical areas		Potential providers	Interactive map (SSEN and Flexible Power websites)
	High level service requirements per zone		Potential providers	Website (Flexible Power)
Pre-Tender Stage	Tender Dates & detail service requirements	1 month before tender	Potential providers	Webinar presentation
Regulated Tender Stage	ITT questions	Duration depends on scale and complexity of tender	Pre-qualified providers	Document published on DPS

Table 8: Information shared by procurement stage

3.2 Stakeholder Feedback

The pre-tender webinars are the main channel for direct feedback from prospective service providers. Each webinar includes an interactive, live poll and a 'Q&A' section, which we use to measure the success of each event.

In 2021/22, we received positive feedback across all webinars held. Despite this, we are mindful that, to date, these have attracted only a subset of potential service providers. We are keen to expand the reach of these webinars in 2022/23 to ensure broader engagement, which in turn will inform future areas for improvement.

The following is an example poll result from the SHEPD/SEPD webinar:

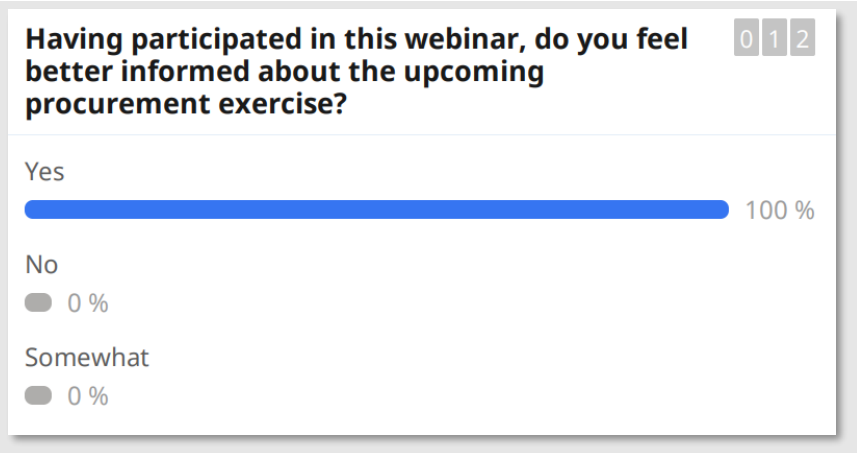

Figure 4: Example poll conducted during SHEPD/SEPD Webinar

As far as possible, SSEN Distribution seeks to answer queries as and when asked at webinars. However, where queries require further investigation, these are followed up by email as soon as possible after the event.

3.3 Co-ordination with other DNOs and ESO

SSEN Distribution actively participates in the ENA's Open Networks programme, through which UK operators share best practice and collaborate on shared initiatives. Workstream 1A of the ENA's Open Networks project focuses on Flexibility Services and key products developed in 2021/22 include:

- Assessing the potential benefits of aligning procurement process timelines for flexibility services across DNOs and the ESO;
- Exploring potential conflicts between different flexibility services and the development of rules and processes to avoid these;
- A review of the different types of 'baseline methodologies' and how they are used in Flexibility Services. SSEN Distribution, through its innovative Transition project, has been closely involved in this workstream and has developed with consultants TNEI an online baselining tool and open-source algorithms which are now planned to be implemented in the Flexible Power platform.

In addition, SSEN Distribution is 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. A 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.

We are currently working with the ESO and Scottish Hydro Electric Transmission, the Transmission Operator in the north of Scotland, to explore options for battery storage at two Grid Supply Points ahead of wider system asset replacement. This joint working allows a whole system assessment before making a decision on what is the most appropriate option to progress.

3.4 How to sign up for future engagement events.

If you would like to receive information pertaining to future Flexibility Service stakeholder engagement events, please email stakeholder.engagement@sse.com. Stakeholders can also view and register for engagement events at https://ssen.engage-360.co.uk/

SSEN Distribution encourages any interested providers to register on the Dynamic Procurement System. Once registered and qualified, providers will be notified of upcoming tenders and can participate if they wish.

4.ECONOMIC VIABILITY

4.1 Requirements and Benefits Analysis

Our approach to establishing a requirement and assessing the potential benefit that a Flexibility Service could offer, varies depending on the type of service.

Sustain services

SSEN Distribution has developed a neutral investment process to give technical and economic assurance for our decision making on when to procure and use Flexibility Services or invest in network reinforcement. The process starts with load forecasts derived from historical data to identify areas of the network where capacity may be breached under normal operating conditions. If the cost of reinforcement is greater than £500k, the project undergoes an assessment of the overload conditions to define potential flexibility service windows, required MW capacity and forecast utilisation. An initial cost evaluation (based on prevailing market prices) and technical evaluation is carried out to determine which schemes should progress to the market test stage.

In 2021/22, this process identified the following potential schemes:

Candidate CMZ	Region	Neutral Investment Outcome
South Elgin	SHEPD	Flexibility not technically viable.
Logie Pert	SHEPD	Flexibility technically and commercially viable.
Deddington	SEPD	Flexibility not technically viable.
Standlake	SEPD	Flexibility not cost-effective.
Overton	SEPD	Flexibility not cost-effective.
Southfield Road	SEPD	Flexibility not cost-effective.
Milton	SEPD	Flexibility not cost-effective.

Table 9: Neutral Investment Assessment Outcome

The cost evaluation is performed using the Common Evaluation Methodology (CEM) model. This model, developed collaboratively through the ENA's Open Networks project, determines the optimum strategy between traditional reinforcement and flexibility.

All other services

For opportunities relating to planned and unplanned outages on our network, these were identified through the review of all circuits expecting maintenance where planned outages were required, or those with the potential for single circuit risk while works were being undertaken. For these sites, restoration plans were analysed to identify areas that might experience sustained outages in the event of a secondary fault and / or might justify Mobile Diesel Generation (MDG) to restore or maintain supplies.

For Secure and Dynamic services, availability and utilisation prices were 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, in comparison against alternatives. This is typically done at least 2 weeks before the service is needed.

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.

In 2021/22, we went out to tender for all zones included in our 2021/22 Flexibility Procurement Statement. This reflected our approach to include zones with a high level of confidence in our Statement and to provide future updates should additional opportunities be identified during the year. This was reflected in our updated Statement, which was published in October 2021, where 43 new zones were identified. As a result, our 2021/22 Procurement Statement, as revised in October 2021, aligns with our actual procurement during the year.

More information on the methodology used can be found via the following links:

- 2021/2022 Flexibility Procurement Statement
- ENA Common Evaluation Methodology v2.0 (energynetworks.org)

4.2 Price Evaluation

As part of the tender evaluation process, SSEN Distribution scores providers 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 are 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 and this may result in contracts being awarded that are not competitive and, consequently, are unlikely to be used. The exceptions to this are the Sustain tender, where a ceiling price was established using the CEM, and the Stability tender, where the ceiling price is based on the known cost of existing spinning reserve.

Following the tender exercise for our Sustain service, SSEN Distribution re-ran the CEM model to reflect actuals rather than assumed high level cost information to confirm the economic viability of the service relative to traditional reinforcement.

For all other services, this economic viability assessment is carried out close to the point of service need. The decision whether to use a Secure/Dynamic service for planned work currently involves using the same methodology used to decide whether to use diesel generation, by weighting the potential financial exposure under our loss of supply incentives (Customer Interruptions and Customer Minutes Lost incentives) against the risk of a power outage as a result of planned work. Mobile or embedded diesel generation may be chosen over Flexibility Services if it is cheaper or has technical capabilities (such as islanded operation) better suited to the planned work or outage.

The outcome of all tenders is published and is available here.

4.3 Market Assessment

In reviewing the market ahead of procurement, the limited number of potential providers in some areas was identified based on analysis of generator connection data. This led to the trial of a new targeted email method of engaging with the market.

Targeted email trial

As a proof of concept for 3 zones tendered in 2021, embedded generators who could potentially provide services were identified using information already held by SSEN Distribution. The generators were directly contacted by email before the tender to encourage them to participate.

Provider Participation in other Markets

SSEN Distribution does 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.

4.4 Cost Benefits to Date

For all flexibility services that have been used to date, costs have approximately broken even when compared with the traditional alternative of Diesel Generation. With the removal of tax advantages on the use of diesel for generation, we expect significant savings to be achieved from these services when they are used in the future.

5.CARBON REPORTING

5.1 Quantitative Carbon Assessment & Methodology

In 2021/22, because all services used have been in fault conditions and the alternative would have been diesel generation, CO_2 savings have been calculated by comparing what the emissions from diesel generation would have been, against the assets used for the Flexibility Service. All DERs used in 2021/22 were hydro or wind, which for simplicity are treated as having zero carbon emissions.

For the avoidance of doubt, SSEN Distribution is agnostic to the carbon intensity of assets during procurement but reserves the right to factor carbon intensity into decisions on which providers to use. In practice, nearly all contracted capacity in the north is renewables (hydro or wind), and no fossil fuelled services were dispatched in 2021/22.

Carbon Savings

The diesel conversion factor applied by SSEN Distribution for the purposes of our 2021/22 Report is 0.25338 tCO_2e/MWh (gross calorific value for 100% mineral diesel). This is based on the Government's 2021 Conversion factors, as revised in January 2022[1].

On this basis, having avoided 4,615 MWh of diesel generation through the use of flexibility services, this equates to a CO_2 saving of 1,169 tonnes in 2021/22.

Going forward

SSEN Distribution is working collaboratively through the ENA's Open Networks Workstream 1A to develop a product that will evaluate and streamline the different options for Carbon Reporting. A set of recommendations will be proposed later this year, which if accepted, will be implemented into our Carbon Reporting methodology.

1 Greenhouse gas reporting: conversion factors 2021 - GOV.UK (www.gov.uk)

6.APPENDIX: SUPPLEMENTARY INFORMATION

6.1 Useful links to additional information

System	Description	Link
DPS (Delta-esourcing)	Dynamic Procurement System, used for pre-qualification and tendering.	https://ssen.delta-esourcing.com/
Flexible Power Website	Service documentation, Interactive map of zones being tendered, requirements, and tender open/close status.	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.	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 Development Programmes (RDPs).	https://www.nationalgrideso.com/research-publications/regional-development-programmes

Table 10: Useful links

CONTACTS

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Scottish & Southern Electricity Networks