SSEN DISTRIBUTION

WORST SERVED CUSTOMERS SUBMISSION

2024/25

CONTENTS

Executive Summary

Scottish and Southern Electricity Networks (SSEN) operates in two licence areas: the north of Scotland as Scottish Hydro Electric Power Distribution plc (SHEPD) and central southern England as Southern Electric Power Distribution plc (SEPD). Both licence areas are shown in figure 1.

This report presents the annual update of SSEN's projects aiming to improve service we provide to Worst Served Customers (WSC) across our distribution networks during the RIIO-ED2 period[1]. Worst Served Customers are defined as those who experience a higher-than-average number of interruptions in a three-year period. As part of our RIIO-ED2 Business Plan we have committed to improve our network performance for at least 75% of Worst Served Customers by 2028, this represents 8,166 customers in SHEPD and 4,122 in SEPD. These figures are determined by the number of customers classified as Worst Served at the time of our Business Plan submission, so the target will remain unchanged.

The list of projects presented in this report may vary from the projects submitted in our business plan due to the methodology[2] used to identify WSC.

Figure 1 - SSEN Licence Areas

WSC Identification

Under the Licence[3], Worst Served Customers are defined as a *"Customer who experiences 12 or more unplanned Incidents of a duration of three minutes or longer at Distribution Higher Voltage over a three Regulatory Year period with a minimum of two such Incidents per Regulatory Year".*

As part of our routine network management, we collect data on the number of interruptions, as well as other associated metrics. We then use this information to identify customers who meet the WSC criteria. We then use this data to complete network studies and any proposed interventions under the WSC mechanism.

We enhanced the prioritisation of WSC projects by incorporating data from our Priority Service Register (PSR)[4]. The PSR helps us to identify customers in vulnerable situations who may require extra support during supply interruptions. A higher-than-average number of interruptions is likely to have a greater impact on PSR customers, and therefore it is important that we improve the performance of the networks serving these customers.

We aim to improve services to both non-PSR and PSR customers. For WSC projects, we prioritise parts of the network with the highest number of registered PSR customers who are also WSC. We have an ongoing programme of work that looks to increase the awareness of the PSR, and the number of customers registered on it.

[1] 1 April 2024 – 31 March 2028

[2] https://www.ssen.co.uk/about-ssen/library/customer-information-documents/

[3] Special Licence Conditions for Electricity Distribution Licence holders

[4] The Priority Services Register is a free support service that makes sure extra help is available to people in vulnerable situations

Reason for high interruption rates

There are multiple reasons for the interruption rates experienced by our customers which categorises them as a WSC, for example:

- Indication of poor circuit condition or possibly the presence of ongoing faults due to component failures.
- External causes such as bird strikes, lightning strikes or falling trees on overhead lines or third-party damages.
- The Island networks in Scotland (SHEPD) suffer higher levels of deterioration due to proximity to the coast and inclement weather.
- SEPD has one the highest level of tree density for the UK and some areas can experience higher-than-average tree related faults.

Delivering for the future

The key areas we apply to all future investment opportunities ensuring value for money for our customers:#

- **Reliability** – All customers, regardless of location, will have the minimum level of service as required by DNO licence and engineering recommendations. We are committed to maintaining and, where necessary, improving customer reliability.#
- **Affordability –** At the heart of our approach to operating the networks is keeping costs to a minimum. For WSC, the goal is to achieve the biggest reduction in WSC numbers at the most efficient cost.#
- **Efficiency –** Is one of our core values, providing secure, safe and reliable networks at as low a cost as possible to the customer. All works proposed for WSC will follow the SSEN's approach of 'touching the network efficiently'. This means carefully coordinating projects to avoid multiple or repeated disruptions in the same area. Therefore, we plan WSC improvements alongside other initiatives and, where possible, deliver those improvements through other ongoing projects.

Summary of options considered

When considering the best course of action to help WSCs, there are many ways to enhance the existing network. These options vary considerably in costs depending on the method of improving network performance. We study circuits to understand the types of faults, the location of the WSC and identify the most effective option.

Optioneering works we consider to improve our network performance:

- **Overhead line rebuilds** are used in areas that have seen higher levels of deterioration than expected (for example in coastal areas), as well as areas that have seen a high level of transient faults (short interruptions) – typically in wooded areas. These lines are enhanced with a covered conductor which is more robust and improves performance compared to the older open wire lines.
- **Additional protection devices** (either fuses or circuit breakers) for overhead lines can be installed. These devices allow for better sectionalisation of the network, meaning that only customers in the area of the fault are affected. Although this does not directly remove faults in affected areas, we expect that it will reduce the number of customers who are affected by individual faults, including leading to WSC experiencing fewer interruptions overall.

- **Automation** is currently installed on many circuits within SSEN Distribution, and this can be enhanced to help improve the performance experienced by WSCs (as well as all other customers). The automated switches restore customers in the non-fault affected areas within three minutes, helping to reduce the impact of these interruptions.

- **Replacing overhead lines with underground cables**. Whilst this is the highest cost option, in areas that we have seen repeated tree strikes/lightning strikes/bird strikes, removing the overhead lines and installing underground cable may be the best option to reduce the number of faults in these areas.

SHEPD WSC – Project Summary

Number of customers in SHEPD who qualified as WSC during the Regulatory Year ending on 31 March 2025 is 9,123.

Below is a summary of the projects that are currently underway in SHEPD can be found below.

WSC Project reference Number	Year Qualified	Name of WSC project	Description	Evidence of relevant optioneering	Network location of WSC project	Number of WSC expected to benefit	Expected completion date	Expected cost of WSC Project	WSC Project status*	Number of WSC benefitted	Reason for variance if applicable	Actual Delivery Date	Annual Cost of the WSC project
PH003712	2020	Achiltibuie	To reduce this impact of longer restoration time as a result of a radial network, this project seeks to form a ringed circuit with automated circuit sectionalisation. This will include the installation of an additional 6km of 11kV OHL and a pole mounted circuit breaker.	As described above in Summary of options considered	North West of Scotland	145	2027	£440,000	Planning				£22,209.10
PH003973	2020	Barvas/Coll	This project looks to improve the interconnectivity of substations between Stornoway Grid to Coll substation via Barvas Substation. We seek to connect these three substations via 18.7km of 33kV OHL with additional switchgear at each primary substation.	As described above in Summary of options considered	Isles of Lewis, Scotland	1895	2028	£9,062,452	Planning				£258,620.88
PH004413	2020	Drimore	A 3 panel 33kV CB switchboard is to be installed at Drimore Primary with an auto-changeover scheme. This will allow for the circuit to be split in the event of a fault, thus reducing the time to restore power to our customers.	As described in Summary of options considered	South Uist, Scotland	453	2026	£495,975	Planning				£53,060.22
PH003711	2020	Harris - Tarbert/Stockinish	A new 33kV cable is to be installed between Harris Grid and Stockinish primary substations with a new 33kV circuit breaker at Harris Grid. There will also be approximately 2km of 11kV OHL installed between the Scadabay E and Plockrapool B spurs.	As described above in Summary of options considered	Harris, Scotland	307	2028	£990,000	Planning				£0.00
PH003745	2020	Stromness/Burgarhill	This project seeks to install around 14km of new and to improve 22km of existing 11kV OHL on the Orkney mainland. The proposed interconnections and augmentation will have newly installed pole mounted circuit breakers to provide automation in the event of a fault, thus reducing the time to restore power to customers.	As described above in Summary of options considered	Orkney, Scotland	813	2028	£1,590,000	Planning				£26,749.98
PH004136	2020	Brae Snowbuil - Flugarth Loop Shetland	This project looks to install 9km of new and to upgrade 6km of existing 11kV OHL on Shetland with additional pole mounted circuit breakers, strategically placed to provide tele control switching in the event of a fault, and a 4-way ground mounted 11kV switching station to further improve network segmentation and switching times.	As described above in Summary of options considered	Shetland, Scotland	109	2026	£690,000	Planning				£0.00
PH003500	2020	Clachan / Aird - (P)	This project seeks to install 15.5km of new 11kV OHL and 5.6km of 11kV cable. In addition to this, an 11kV circuit breaker will be installed at Clachan.	As described above in Summary of options considered	North Uist, Scotland	907	2027	£1,928,000	Planning				£0.00
PH003487	2020	Gutcher Fetlar Island, Yell, Shetland	This project seeks to reinforce the 11kV network on Fetlar island and will require 8km of newly installed 11kV OHL, 6.9km of increased conductor size of 11kV OHL and 1.3km of 11kV augmentation (single to 3 wire). This will create a ring and to allow for customers to be split across two sections, thus reducing the time it takes to restore power.	As described above in Summary of options considered	Shetland, Scotland	77	2028	£710,000	Planning				£0.00
PH003499	2020	Laxay / Maaruig	This project seeks to Install a new 3 panel 33kV switchboard and 4 panel 11kV switchboard at Laxay primary substation. In addition to this, a new 5.5km 11kV feeder will be established with a further 2.4km of 11kV OHL to accommodate interconnection of the two existing feeders at Laxay.	As described above in Summary of options considered	Isles of Lewis, Scotland	1152	2028	£1,796,000	Planning				£7,825.00
PH004135	2020	Unst, New Primary S-S, Unst, Shetland	Installation of a new 33/11kV primary substation with single primary transformer and 11kV switchboard at the isle of Unst splitting the existing network into three sections. Pole mounted circuit breakers will provide network segmentation in the event of a fault.	As described above in Summary of options considered	Shetland, Scotland	319	2027	£890,000	Planning				£0.00

SEPD WSC – Project Summary

Number of customers in SEPD who qualified as WSC during the Regulatory Year ending on 31 March 2025 is 3,244.

A summary of the projects that are currently underway in SEPD can be found below.

WSC Project reference Number	Year Qualified	Name of WSC project	Description	Evidence of relevant optioneering	Network location of WSC project	Number of WSC expected to benefit	Expected completion date	Expected cost of WSC Project	WSC Project status*	Number of WSC benefitted	Reason for Variance, if required	Actual Delivery Date	Annual Cost of the WSC project
PS004124	2018	WSC 118002 UPPH E4L5 - Mill Lane	Undergrounding of 2.87km of overhead line with 3.2km of cable in the Lower Heyford area	As described above in Summary of options considered	Lower Heyford	354	2025	£718,750.00	Delivery				£78,860.35
PS006663	2019	WSC 623001 MIDH E4L5	Installation of additional automation including two pole mounted circuit breakers.	As described above in Summary of options considered	Midhurst	143	2025	£44,648.00	Complete	143	Not Applicable	18/02/25	£37.41
PS009169	2023	WSC 319001 CRIC E5L5 Eysey	Replacement of 1.1km of open wire overhead line with new covered conductor and, undergrounding of 1.4km of overhead line.	As described above in Summary of options considered	Cricklade	105	2026	£361,390.00	Planning				£4,620.52
PS008146	2024	WSC 623002 ALTL E5L5	Installation of additional automation including two pole mounted circuit breakers.	As described above in Summary of options considered	Four Marks	33	2025	£29,066.00	Complete	33	Not Applicable	16/01/25	£20,766.63
PS008319	2023	WSC 524001 CHMI E2L5 - COASTGUARD COTT	Replacement of the existing ring main unit and transformer and build of an enclosure to reduce the impact of the proximity to the sea,	As described above in Summary of options considered	East Bexington	90	2025	£90,533.00	Delivery				£63,163.14
PS008392	2023	WSC 224001 WARF E5L5	Installation of squirrel guards on Gibbons Lane pole mounted transformer and additional automation at Chawridge lane substation.	As described above in Summary of options considered	Cranbourne	123	2025	£113,071.00	Delivery				£15,479.34
PS008519	2024	WSC 124001 BERI E4L5	Replacement of 340m of open wire conductor with new covered conductor.	As described above in Summary of options considered	Long Wittenham	22	2026	£47,752.00	Planning				£0.00
PS008378	2022	WSC 624001 FABO E5L5	Replacement of 1km of open wire conductor with new covered conductor.	As described above in Summary of options considered	Frimley Green	79	2026	£105,276.00	Planning				£0
PS008482	2022	WSC 525004 DUNB E3L5 - Yew Tree Farm Spur	Installation of additional automation including three pole mounted circuit breakers.	As described above in Summary of options considered	Whiteparish	273	2026	£93,036.00	Planning				£0.00
PS008622	2023	WSC 525003 WIBK E1L5	Replacement and automation of the existing 11kV switch with new ring main unit. In addition, installation of a new pole mounted circuit breaker.	As described above in Summary of options considered	Bere Regis	10	2026	£46,176.00	Delivery				£6,509.00
PS008540	2022	WSC 525001 LYMI E6L5	Installation of automation at existing ring main unit and installation of three pole mounted circuit breakers.	As described above in Summary of options considered	Brockenhurst	87	2026	£25,472.50	Planning				£0.00
PS008508	2024	WSC 625001 LANC E5L5	Additional automation including two pole mounted circuit breakers, and replacement of the existing 11kV switch with new ring main unit including automation.	As described above in Summary of options considered	Rogate	397	2026	£71,207.00	Planning				£0
PS008481	2023	WSC 225002 CHIS E2L5	Replacement of 400m of open wire conductor with new covered conductor near Mill End. Installation of automation on existing ring main unit.	As described above in Summary of options considered	Mill End	12	2026	£52,750.00	Planning				£0.00
PS008657	2023	WSC 324001 WGRV E1L5	Installation of additional automation including two pole mounted circuit breakers.	As described above in Summary of options considered	Everleigh	149	2027	£22,000.00	Planning				£0.00
PS009331	2024	WSC 626002 CHHE E6L5	Additional automation including two pole mounted circuit breakers. Replacement of the existing 11kV switch with a new ring main unit that will be automated.	As described above in Summary of options considered	Fontwell	129	2027	£58,245.00	Planning				£0.00
PS009363	2023	WSC 526003 RELY E1L5	Installation of automation at existing ring main unit and installation of one new pole mounted circuit breakers.	As described above in Summary of options considered	Landford	18	2027	£23,115.00	Planning				£0.00
PS009398	2023	WSC 225001 THAT E9L5	Replacement of 1.15km of open wire overhead line with new covered conductor and install additional automation at 1 sub-station.	As described above in Summary of options considered	Crookham Common	203	2027	£86,473.00	Planning				£0.00

PS009385	2023	WSC 127001 FYFI E2L5	Replacement of 735m of open wire overhead line with new covered conductor.	As described above in Summary of options considered	Frilford Heath and Gozzard's Ford	19	2028	£139,602.00	Planning				£0.00
PS009290	2024	WSC 626001 HABO E6L5	Additional automation including two pole mounted circuit breakers and replace 25 metres of open wire conductor with new covered conductor.	As described above in Summary of options considered	Petworth	177	2026	£15,710.00	Planning				£0.00
PS009379	2024	WSC 327001 NLEA E2L5	Replacement of 2.1km of open wire overhead line with new covered conductor and install additional pole mounted circuit breaker.	As described above in Summary of options considered	Farmington and Turkdean	57	2028	£252,825.00	Planning				£0.00
PS009362	2024	WSC 526002 PUDD E1L5	Replacement of 700m of open wire overhead line with new covered conductor	As described above in Summary of options considered	Dewlish	426	2027	£41,503.50	Planning				£0.00
PS009364	2024	WSC 526004 CHRI E10L5	Replacement of 1km of open wire overhead line with new covered conductor	As described above in Summary of options considered	Hurn	72	2027	£58,765.00	Planning				£0.00

*WSC Project Status explained:
Planning – WSC Project is being planned, including any consents being obtained
Delivery – WSC Project is being delivered i.e. construction has commenced
Completed – WSC Project delivery has completed