RIIO ED2 WORST SERVED CUSTOMER METHODOLOGY

Scottish & Southern Electricity Networks

CONTENTS

1 Exec Summary

The purpose of this document sets out the methodology which Scottish and Southern Electricity Networks (SSEN)[1] uses to identify Worst Served Customer (WSC) Projects to reduce the number of interruptions WSC experience, including our approach to optioneering and costing.

2 Worst served customer Identification

Under the Licence[2], Worst Served Customers (WSC) 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 normal activities in managing our network, we collect information on the number of interruptions, as well as other associated data, that occur on the network. This data is used to form the list of customers that meet the definition of a WSC, which is then used to complete a network study and any proposed intervention(s) under the WSC mechanism.

SSEN has enhanced the prioritisation of WSC projects with the addition of data from our Priority Service Register (PSR)[3]. The PSR allows us to identify those customers who are in vulnerable situations and who may need additional support if they are off supply. A higher-than-average number of interruptions is likely to have a greater impact on PSR customers than other customers, and therefore it is important that we improve the performance of the networks that serve these customers.

We aim to improve both non-PSR and PSR customers. For WSC projects, the priority will be placed on parts of the network with the highest number of registered PSR customers who are also WSCs. SSEN has an ongoing programme of work that looks to increase the awareness of the PSR, and the number of customers registered on it. This will help us to identify those parts of our network where PSR WSCs are connected and inform the priority of WSC projects in the future.

3 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.
- There may be other external causes which contribute to high interruption rates, such as bird strikes, lightning strikes or falling trees on overhead lines or third-party damages.
- The Island networks in Scotland (Scottish Hydro Electricity Distribution – SHEPD) suffer with higher levels of deterioration due to proximity to the coast and inclement weather.
- Southern Electric Power Distribution (SEPD) has one the highest level of tree density for the UK. Although SEPD has a robust tree cutting programme to manage this challenge, this still presents a risk in areas of refusal and restricted cuts. This can mean there are some areas with higher-than-average tree related faults.

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[1] SSEN for the purpose of this document includes Scottish Hydro Electricity Distribution and Southern Electric Power Distribution

[2] Special Licence Conditions for Electricity Distribution Licence holders

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

4 Types of proposed WSC projects

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. Circuits will be studied to understand the types of faults, the location of the WSC and the best course of action will be understood.

Optioneering works that SSEN consider to improving network performance include:

- 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 will allow for better sectionalisation of the network, meaning that only customers in the area of the fault will be affected. Although this will not directly remove faults in areas affected, 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, and this can be enhanced to help improve the performance experienced by WSCs (as well as all other customers). The automated switches will restore customers in the non-fault affected areas within 3 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.

The key areas identified below will be applied to all future investment opportunities, helping to ensure value for money for our customers:

- **Reliability –** All customers, regardless of location, will have the minimum level of network reliability as directed by DNO licence conditions and engineering recommendations. SSEN are committed to maintaining and, where necessary, improving customer reliability.
- **Affordability –** At the heart of SSEN's approach to operating the networks is keeping costs to a minimum. With WSC, the focus will be on achieving the biggest reduction in WSC numbers for the lowest cost. SSEN will look to maintain the level of investment of £1000 per customer, but we recognise that additional investment may be required in certain circumstances – such as where the topology around the network means particular solutions are (or are not) available**.**
- **Efficiency** is one of SSEN's 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 approaching to 'touching the network efficiently'. This will mean that when the work is planned other considerations will be taken into account, for example asset replacement, maintenance and defect rectification, so that we can make the best use of any intervention on the network. Where possible, the WSC projects and other works will be planned at the same time reducing the number of shutdowns needed to maintain the network. This means that named WSC projects submitted in our RIIO-ED2 Business Plan Submission may be delivered via other investment drivers.

We will look to ensure all the elements are addressed when considering how we implement WSC projects.

5 Stakeholder Feedback

We conducted audience research with stakeholders via online workshops/open forums to co-create our strategies and priorities in RIIO-ED2 for improving the network for WSCs. The following insights were derived:

- There was no consensus on which of the following factors should be prioritised in targeting investment in worst-served circuits: number of WSCs; number of interruptions; level of customer vulnerability; or potential of low carbon technology (LCT) take-up.
- Stakeholders, however, expressed concern about the impact of power cuts on customers in vulnerable situations and, on this basis, there was support for focusing investment efforts on reducing the number of worst-served vulnerable customers.
- The interruption duration was also recognised as an important factor by our stakeholders. Ofgem's WSC definition focuses on the number of interruptions as the factor that determines when a customer is considered 'worst-served'. Other elements of the price control drive us to reduce the duration of interruptions in all circumstances, and we will continue to take steps to improve the performance of our networks.
- Stakeholders suggested that an annual WSC report would be welcomed and would raise the profile of the issue, however, may give the impression that investment would be made in these areas but is not always the case.
- Some stakeholders were concerned about the impact of worst-served circuits on generation as well as supply customers.

6 Customer Service

SSEN is committed to all of our customers. We strive to deliver a service that we are proud of to our customers. Our customers have told us they want better service with fewer interruptions at a lesser cost. SSEN is committed to delivering this by utilising innovation, driving efficiency through reducing operational costs and waste, improving our customer service and by listening to our customers through continuing stakeholder engagement.

7 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	First Publication	First Revision	1.0	Colin Pirie
02	Change to efficiency in section 4 – Types of proposed WSC projects	1.0	1.1	Colin Pirie
03	Reviewed document No changes	1.1	1.2	Colin Pirie